

# American **FORESTS**



OCTOBER 1935

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### **BELL TELEPHONE SYSTEM**

# AMERICAN FORESTS

OID BUTLER, Editor

L. M. CROMELIN and ERLE KAUFFMAN, Assistant Editors

## CONTENTS FOR OCTOBER, 1935

Vol. 41

No. 10

<i>THE COVER</i> —"Early Morning on Hoodoo Lake, in the Lolo National Forest, Idaho" <i>Photograph by K. D. SWAN.</i>	
<i>"THE HARP OF THE WINDS"</i> <i>Photograph by ERNEST WILLIAMS—Winner of Honorable Mention Award in 1934 National Competition for Beautiful Photographs of Trees</i> ...	570
<i>THE BUILDING OF THE PAPOOSE TRAIL</i> <i>By JULIAN ROTHERY</i> .....	571
<i>MUST THE ANTELOPE GO?</i> <i>By IRA N. GABRIELSON</i> .....	575
<i>ABROAD IN CALIFORNIA</i> <i>By FARNSWORTH CROWDER</i> .....	577
<i>NO CLOSED SEASON—NO BAG LIMIT</i> <i>By DUANE H. KIPP</i> .....	581
<i>PARADISE FOUND</i> <i>By W. C. MCCORMICK</i> .....	584
<i>PROSPECTOR OF JACKSON HOLE</i> <i>By FRITIOF M. FRYXELL</i> .....	586
<i>PRESIDENT LEADS GREAT CONSERVATION RALLY</i> .....	588
<i>MORE POWER TO THE FIRE FIGHTERS</i> <i>By F. G. WILSON</i> .....	591
<i>LASSEN—AMERICA'S ACTIVE VOLCANO</i> <i>By CRISTEL HASTINGS</i> .....	592
<i>EDITORIAL</i> <i>STATE FORESTS</i> .....	593
<i>SHOULD FARMWOODS BE GRAZED?</i> <i>By DANIEL DENUYL</i> .....	594
<i>FIELD AND FOREST FOR BOYS AND GIRLS</i> <i>How Wood Is Made</i> <i>By SHIRLEY ALLEN</i> .....	596
<i>TREES AND THEIR USES</i> <i>No. 9—Engelmann Spruce</i> <i>Drawn by CALVIN FADER</i> .....	597
<i>ENGELMANN SPRUCE (Tree Series)</i> .....	598
<i>AROUND THE STATES</i> .....	600
<i>CONSERVATION CALENDAR IN CONGRESS</i> .....	602
<i>ASK THE FORESTER</i> .....	604
<i>BOOK REVIEWS</i> .....	608
<i>FORESTRY IN CONGRESS</i> <i>By G. H. COLLINGWOOD</i> .....	609
<i>"WHO'S WHO" AMONG THE AUTHORS IN THIS ISSUE</i> .....	616

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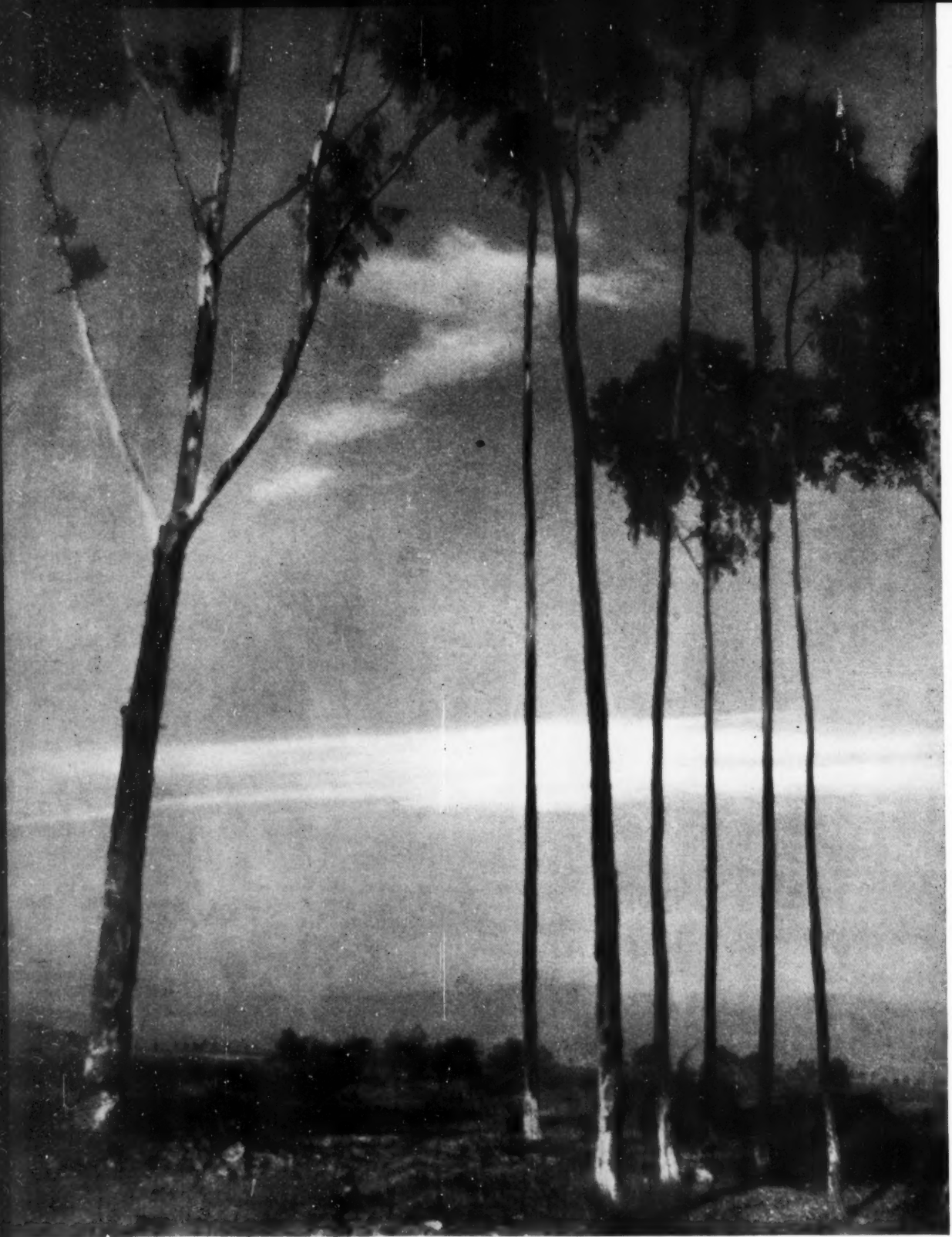


Photograph by Edward Gockeler

### ADIRONDACK VISTA

\*\*\* The hills,  
Rock-ribbed and ancient as the sun; the vales,  
Stretching in pensive quietness between;  
The venerable woods; rivers that move  
In majesty \*\*\*

—BRYANT.



## "The Harp of the Winds"

*Drowsing under a sultry sky, wrapt in old memories,  
Waiting the West Wind's fingers to awake new melodies.*

—JOHN PHELPS.

Photograph by Ernest Williams,  
Taken in California.

Honorable Mention—1934 National Competition Conducted by  
The American Forestry Association  
for  
Beautiful Photographs of Trees in America



# THE BUILDING OF THE PAPOOSE TRAIL

A Tale of Pioneer Days in an  
Idaho National Forest

By JULIAN ROTHERY

HERE was I, Ranger Barr, in sole charge of the Gold Basin District of the finest National Forest in the West, strong of mind, young of body, drawing seventy-five seeds a month salary, but with gloom permeating the whole blamed atmosphere.

September was due in about four hours, and I hadn't polished off all the season's work. Forty-five miles of the Papoose Trail had yet to be cleared of fallen timber, and nary a tap had I done to date, though the Supervisor was coming early in October. Even a forest ranger can't cut trails, fight fires, wrangle sheep-herders, build cabins and make surveys, all at the same time.

The Supervisor sort of broke the news of the summer easy, saying that he appreciated that I ought to have a half dozen forest guards and a big construction gang for the work he'd outlined, but there wasn't any money to hire 'em. Seems like an all-wise Congress, prodded up by a certain Senator Harrington, who never seen a forest or a trail, decided that five thousand plunks is too much money to spend on a trifling seven million dollar forest. The Supervisor tells me I can fly at my job alone, such odd times as moonlight nights and Sundays. Forty-five suffering miles single-handed!

Dejection is still bubbling from me when in prances good old Trapper Jim, shaking his abundant grey locks and blowing himself up like a burntland toad.

"Hello, Trapper," I salutes. "Where you a-heading?"

"To Turkey," he howls.

"Good enough," I replies, "but what for?"

"To collect one of them baths they give those birds over there," he says, beginning a war dance.

Thinking his solitary life has turned his brain, I begins to humor him. "Maybe I'll go along too, if you recommend 'em so all-fired high. Or we could ride over to Sulphur Creek and try the hot springs there—it's nearer."

Trapper Jim wags his head. "See this grey hair of mine? It was good enough for General Miles when I scouted for him. When I drove Horace Greeley over the Smoking Top Pass he had no comments to peddle; but an ornery parcel of dirty dudes I was herding around on a hunting trip, they has to nib in and suggest these here hair-cuts and turkey baths," he yells.

"That ain't the most pestiferous either. The woman of the outfit, she insults me worse. She riles me smooth and hair-side both. That sour-dough jar of mine, you know it, Ranger, the one I've packed all over these hills, and

the same I used to make bannocks for Governor Page with, well, that woman calls it a 'nauseous pot.' I couldn't stand for that so I blessed 'em out and pulled my freight."

Trapper Jim kicked a chair into a corner. "Four there were in the outfit, that same pestiferous female critter, two devil brats about eighteen and twenty, and an unburied corpse of a human that answers when his wife calls 'Charles.' That bunch assayed more different brands of orneriness than I thought any four humans could hold at one time. But when they called my sour-dough jar a 'nauseous pot' I started in on their ancestors and branched out into their own personal appearances, manner and character, and where they could go to. Just as I was beginning to get up speed I stops a minute to shift my quid, and would you believe it the man, a pink-necked, popping dink, yelps: 'You're discharged.' 'Guess again,' I hollers, 'I resigned myself half an hour ago.'

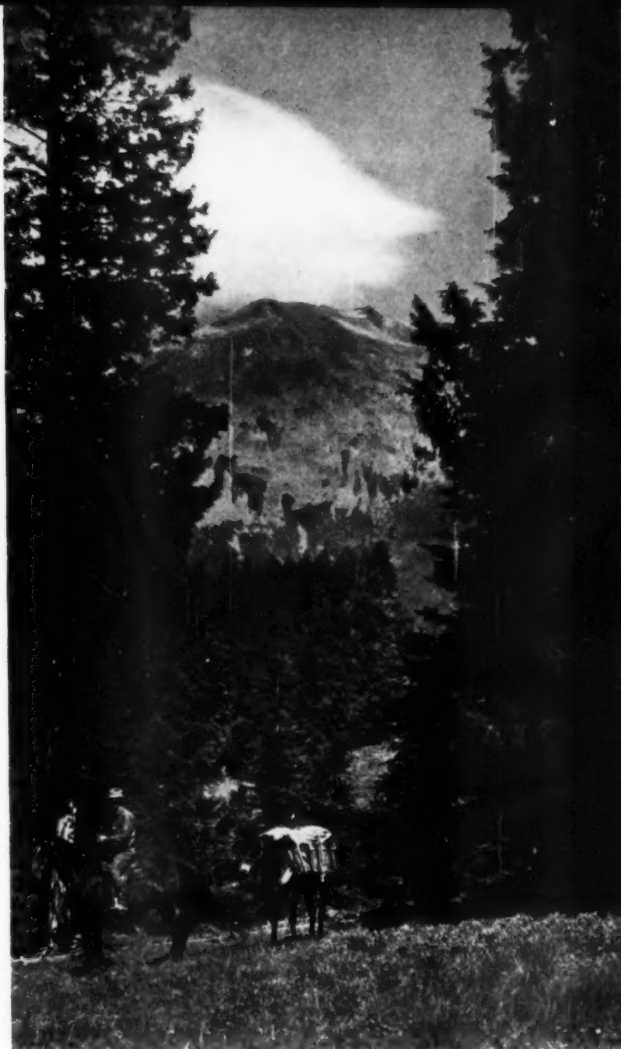
"I refuse to pay for such service," he screeches.

"I wouldn't take your dirty money unless it was blowed into my back with a shot gun," I roars, starting to throw the saddles on my four pack ponies.

"Are you going to take all your horses?" asks the lad, pop-eyed.

"Right the very first time," I fired back. "I hereby decamp, abscond, vamoose and beat it."

"Do you mean to tell me," whines his royal giblets senior, trying to look severe, "that you dare to desert us, leave us to die in these awful mountains?"



"I've dared more horrible things than that in my days," says I. "But mebbe you won't die. I know some blokes down here on Blue Creek, meaner than rattlesnakes in skin-shedding time, and blasted careless who they travel with. You will all get on fine no doubt, so if I like it, I may leave that Turkey trail long enough to tell what kind of a outfit is stranded up here. They might come up in a coupla weeks and pack you to the settlements, but I won't guarantee it."

"With that I cinches up on the last saddle and lights out of there."

When Trapper Jim gets this wail off his gizzard, he rests easier. I tells him that wet-nurse to babes in the woods is part of a ranger's job, so I'll see they don't die complete, as I have to pass by the Papoose Meadows that week anyhow.

Two days later, along about dark, me and my three pack horses blows into Papoose. And there by the creek, looking woe-besogged, with empty cans and petrified biscuits slung around, is the tenderfoots' camp. The very minute they see me they come a-running.

"We're saved, we're saved!" hollers the old gazabo. He has a sanctified look on his face like he was seeing the pearly gates.

I eyes 'em all kinda cold and distant and then remarks, careless-like: "Great stuff, this salvation; who done it?"

"We have been outrageously deserted by a rascally guide. I take it you are going to move us out of here."

He is a fattish flub of a human with a bristly, belligerent mustache. I slips from my horse and starts unpacking deliberate.

"No, by Godfrey, I aint a-herdin no dudes this trip," I says. "I'm the Government Ranger in charge of this district and my sole aim in life is to cut out this Papoose Trail from here to Soldier Springs."

He puffs up like a poisoned pup and speaks real commanding-like: "My wife and two children and myself have been through a harrowing experience. An old reprobate whom I engaged to guide us out here, where I have come in search of health and big game, left us without warning."

Remembering the scope and duration of Trapper Jim's riot-act, I couldn't help smiling. "Why don't you hop to it, then?" I asks, shaking out my bedroll. "The health and the big game is still a-plenty in these hills."

"We are not accustomed to life in the wilds."

"Wilds be darned," I says. "It's only a hundred and twenty miles to War Eagle, and counting old China Bob, six men live there."

"I will arrange with you to guide us over there."

I lights my fire before replying: "I ain't going out for six weeks yet, not till this trail is cut. I might get you out by the middle of October."

"We intend to start tomorrow," he snaps, "and you will accompany us."

"Don't get too brash with them orders of yours. The only man that gives me orders is the Supervisor. I give them to every other living critter in this district, peaceably when I can, by force of arms when I have to. I am the Czar of Roosia, Robinson Crusoe, and unanimous candidate for President of the United States with every voter in this district, being that myself," says I, average crisp.

"Don't nobody ever pass this way?" asks the lad, in a scared voice.

"Oh, sure," I says, real cheerful. "Carl Steinman prospected this very creek only twelve miles below here in the summer of '86." I slaps a nice grouse into the frying pan and fills the coffee pot.

The old squill fishes up a roll of bills that would

choke a big-necked bull. "This is more money than you can make cutting trails in a month. It's all yours if you can guide us out to War Eagle."

"Go easy," says I, "while I explain. For and in consideration of seventy-five bucks per month, legal tender and in hand paid, furnishing my own horses and chuck, I runs this district according to the Supervisor's instructions. My district ain't half as large as it was at first, but she's considered over five hundred miles on the level; and if hammered down flat she'd spread over the State of Illinois. In timber alone she's worth more than two million dollars."

"Since Congress thinks—if they are capable of such efforts—that one man is enough to run a skinny job like this, you can see most of my time is taken. Should I croak on the job from battle, fire, work or worry I get paid up to and including the day of my death, even though it happened at eight a. m. I ain't playing this game for money, so I can't take yours."

"Let me tell you," says he, casting a fried-egg eye in my direction, "I have a very weighty influence at Washington, myself. When I tell you who I am—"

"I don't care two whoops in a gale who you are," I cuts in. "You may be George Washington himself, Doc Cook, that double-dub of a Senator Harrington, or the long lost Charlie Ross. Every crooked sheepman, timber thief, land looter and mining swindler I ever met up against has got influence at Washington. You missed with that barrel, and it peeves me more than them bills. I act damn peculiar when I'm peeved, too."

Then the boy, who is a nice looking rooster about half-feathered out, chirps up: "Perhaps if we helped you do your work, Mr. Ranger, we would finish so quickly that you could guide us without losing any time."

I pours the water into my gravy and speaks sorrowful: "Well, the general idea don't make me rare up and buck like some I've heard lately. But the practical outlook is poor and depressing. You look the kind of a lad that would try, but you couldn't do a day's work to keep your soul from frizzling. And as for the old man—"

This pricks Pink-Neck a bit. "Why, I was raised on a farm," he says. "I've milked ten cows before breakfast, split wood and . . ."

"You stack up better than I thought possible," I cuts in, "but you left that useful life some years ago, judging from your belt line." Then I started in destroying my grouse and bannocks with a noble relish.

Pink-Neck clears his throat and tries again. "I shall consider it settled that my son and myself shall assist you in cutting the trail, and that the time saved will be employed by you in guiding us to War Eagle."

"Hold your horse, mister. Your scheme would never work. You're fat and lazy and would start howling in floonce and an eight-hour day. You ain't used to being bossed. Besides, you wouldn't stand for a cussing. I get enthusiastic at times and might commence lending encouragement and you would think I was swearing when it was only a sort of rhetorical drink."

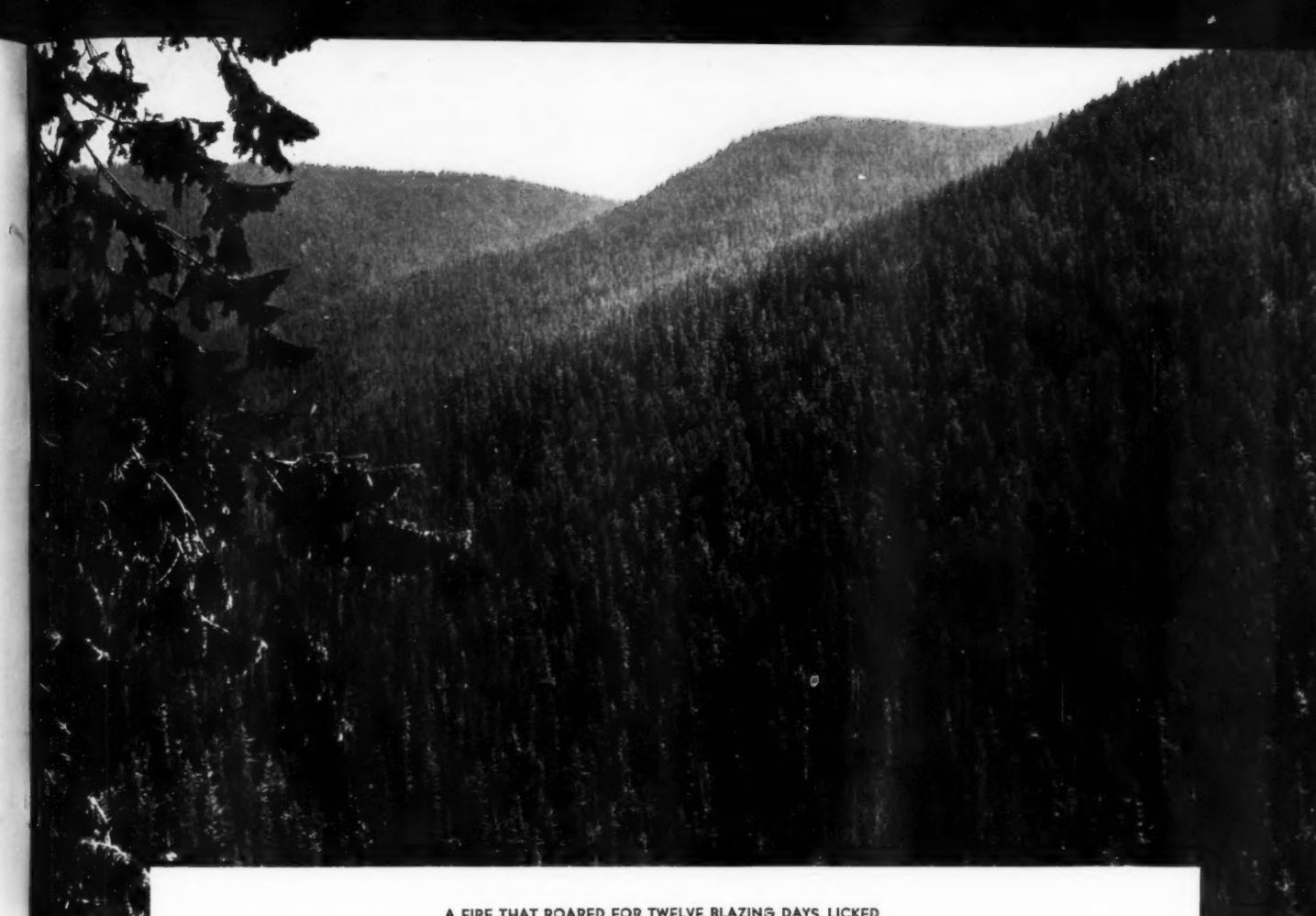
After chewing it over he allows that they could take orders, ditch some of their camp trash, and even take a moderate blessing.

"It won't work," I ruminates dolorous. "Too bad. Thought I had a plan to get you out."

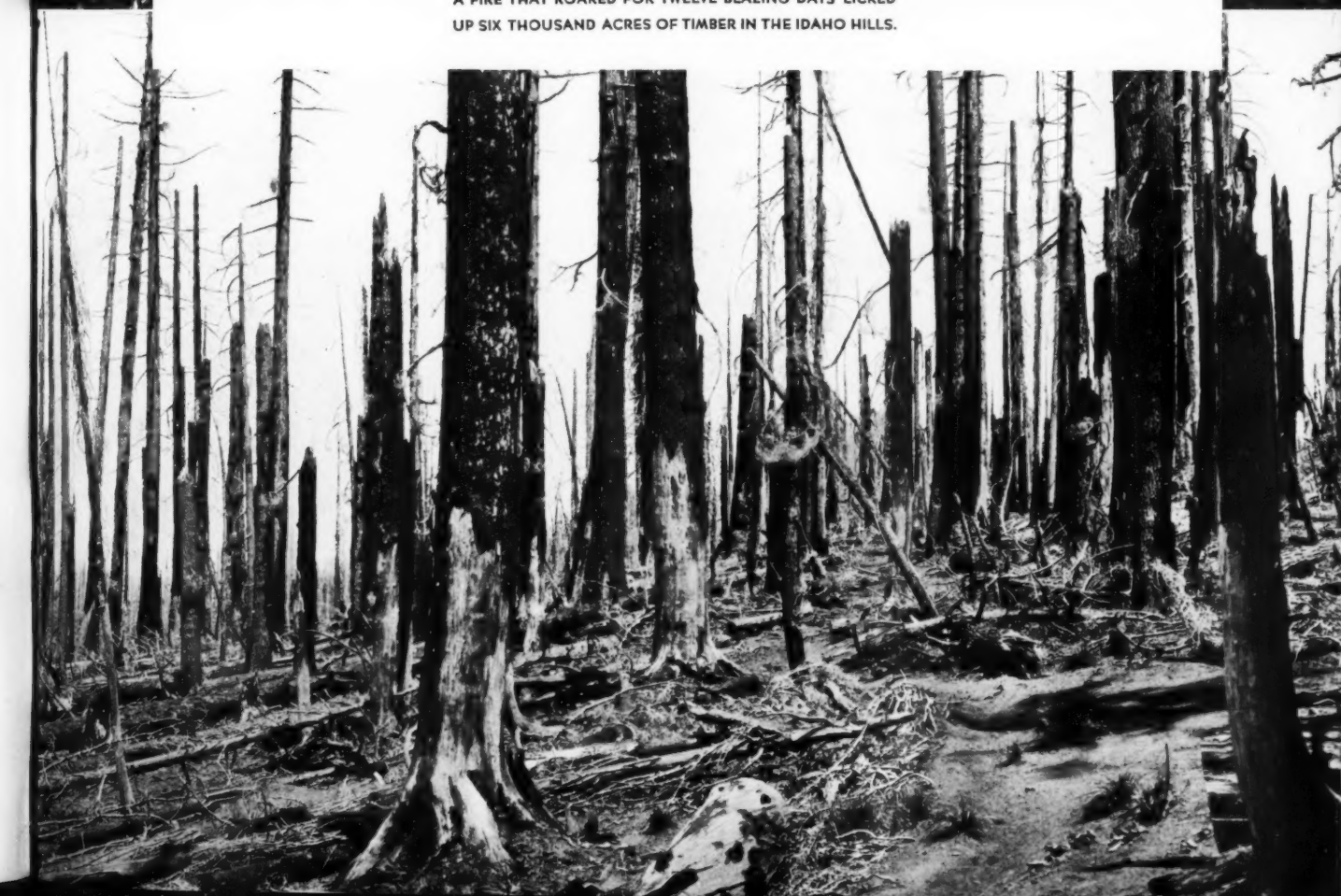
"What's the matter?" he asks.

"It's the cooking," I sighs. "I never could chore around and cook for this gang and cut trail, too."

This raised the fish I was trying for. "Cooking," snaps the old lady, "I guess I can do that." She's a capable looking piece of furniture for a parlor, only she's got a gaze-at-me expression frozen on her face.



A FIRE THAT ROARED FOR TWELVE BLAZING DAYS LICKED  
UP SIX THOUSAND ACRES OF TIMBER IN THE IDAHO HILLS.





"Yes, marm," I replies, real polite, "you might fix up fancy trash like tea and sandwiches, but not genuine grub."

"Huh," she retorts, "when I was a girl I cooked for thirty thrasher-men back on the farm where I was brought up. I could do it again if I had to."

"Why, maw," chimes in Sissy, "I never knew that."

"Well, I did. That's how I met your father. It was buckwheat cakes in thrashing time that landed him."

"You'll do," says I, not caring to press the point. Then remembering how she'd run it over poor old Trapper Jim I asks, innocent but solemn:

"Can you make sour-bread dough?"

"I can!" she flares out. "That is, I've seen the naus—the stuff."

"I'm relieved, marm," says I. "Baking powder biscuit brings on mountain fever. I've seen men die of that."

I saw the old man smirking a secret smile. Then my gaze lights on Sissy. Pretty and pert she was, too.

"Miss," I addressed her respectful, "there's just one job I'm saving for you. I see you don't savvy horses and I am going to show you."

She starts in to telling me about the riding academy back home, but I explains further, "No, that won't go. You know these mountain ponies have never been to a riding academy. But I'll show you how to track 'em in the morning, saddle and pack up, trail 'em along through the woods and turn 'em onto good feed at night. I'll make a regular mule-skinner out of you,"—getting enchanted with the idea the more I looked at them yellow braids—"a genuine bull whacker, a North American hair-pounder, that will astonish the whole blame academy."

She agreed it would astonish them. Then Pink-Neck delivers another oration. "This is a hell of a land," he growls.

But I interrupted his preamble. "You ought to see it with nine forest fires tearing loose at the same time. You'd have better grounds for glittering generalities."

"Well," he snorts, "what good are these fool trails you talk so much about?"

"Trails are the first step in making this a white man's land," I explained. "That Pullman car you coasted into Idaho on follows the Old Oregon Trail. We can get along without Congress and them grafters out there, but we got to have trails. They open up the back grazing and homestead lands, and helps us protect the timber from fire. I had a fire here one summer that roared for twelve blazing days and licked up six thousand acres of timber, all because it took so long to hurdle a gang of fire-fighters through these gander weeds. We had to stop for days to build trail to get men and supplies into it. Sensible work, ain't it, when a thousand dollars an hour is booming up in smoke?"

Later in the evening I pulls out my diary to write my day's work, when Pink-Neck nibbles again, wanting to know all about it.

"It's my service report for the day," I explains affable. "Listen how she goes; moderate busy and diverse, I calls it. Left camp on Yellow Pine Creek and rode to Papoose Meadow, thirty miles, to start cutting out the trail to Soldier Spring. Met party of hunters there who seemed anxious to help and volunteers aid."

I didn't get no further. The old codger raises one sulphur-smoking belch. "Volunteers! Volunteers! A pig's ear!" he screams. "We're conscripts!"

"I ain't agoing to read no more," says I with an injured air. "Them wails of yours will disturb my slumbers."

So I takes the humps out of my bed and rolls in, saying to myself: "Keep a stiff upper lip and a joyful heart. This is the first time in all your godless life providence

ever slipped anything tenderer than a forest fire or a snowstorm onto you."

Long before sun-up I was afoot, rustling breakfast. I remembers Trapper Jim's report on the absence of early insomnia among Pink-Neck, *et al.*

"Things should start with a bang," says I, my gaze resting on a stovepipe of the big tent. A stove is a useless thing to pack through these hills in September, so I solves two problems at once by popping a few bullets through the top of the pipe.

Trapper Jim was mistook in saying they loved to hug their blankets so darn tight, or else he never tried my method of reveille. They was all four of them out front, with some clothes on, too, before the smoke cleared, with chills, yawns and frights running over them.

I sings out genial as a jay bird while I sheathed my six gun:

"Welcome to the Idaho hills and the Papoose Trail. I've got breakfast started, and now, marm," bowing polite to her, "if you will finish flapping these here sour dough hot cakes, us boys can soon start on our personally conducted tour."

Pink-Neck, the boy and I starts in on the east end of the trail close by the Papoose Meadows. I showed 'em how I wanted it cut—about six feet wide—logs rolled to one side and trees blazed with the government marks. I gives a vivid demonstration of the use of those two implements of torture, a four pound ax and a cross-cut saw. They hops right in fine and we whangs her out in great shape.

Sissy fetches us a mid-morning lunch, and we takes on more nutriment at noon. About the time I'm wishing the trail was about a hundred miles long Pink-Neck begins to peter out.

"How much of this damn foolishness is there?" he growls, blowing on four blisters at once.

"Well, old timer," says I cheerful, "by dark we will have two miles done and that will leave only a trifling matter of forty-three more."

I never before saw a man act so interested in distances. Straight up into the air he goes, spouting like a geyser: "Do you suppose I'd cut forty-three damn miles of this damn trail for you or any other damn ranger rascal?" he screams.

I reminded him that this trail cutting idea was his own—that I knew he was fat, lazy and generally useless, and a poor monotonous cusser, and he could quit any minute.

Then he knuckles under pretty as you please. "When I get back home," he grumbles, "I'll raise such a row over this infamous state of peonage that all Washington will quake."

I raps him back smart: "I don't fancy this government pull you're so lippy about, but if you must have it grab one end of this saw and we'll hop to that thirty-inch fir log yonder and junk it out. That's the kind of pull I take to."

It was a stiff-boned bunch of tenderfeet I herded back to camp that night. They bent at the knees, creaked at the joints, and their tracks was a weary wobble. Blistered, sore, aching all over, they grunted and groaned. Pink-Neck perks up a bit after food, and I asks his wife solicitous: "Do you think he can stand it?"

"Of course Charles can," she giggles. "He may be a little out of condition, but this is good for him."

Next day, after leading forth my mowing machines and heading them up trail, I gives my unrestricted genius to the cooking, camping and packing problems of the ladies. I tried to make them feel that they were a long way behind what real women ought to be, and I doubted if they could ever catch up.

(Continuing on page 614)



# MUST THE ANTELOPE GO?

By IRA N. GABRIELSON

Photographs by the United States Biological Survey



Baby antelopes gaze with uncertainty into the future.

WHERE Oregon, California and Nevada meet, a great expanse of sagebrush flats and juniper slopes extends in every direction. In daylight it is a lonesome, gaunt landscape—seemingly a lifeless land. But as the purple shadows lengthen with the coming of evening a miracle happens. Abundant life comes to the sagebrush land. Long-tailed kangaroo rats leap about in seven league boots; the ghostly hunting calls of the great horned owl sound from the junipers; sage hens begin their stately foraging. But somehow, all this is forgotten when the pronghorned antelope gather to feed on the edges of the dry salt lakes.

There one can find this wonderful game animal in numbers varying from 10,000 to 25,000 and upward, depending on whether the enumerator is a conservative student of wildlife or an Irish sheepman who resents the presence of

the animals because of the feed they consume. More than a hundred miles to the west another herd of about 900 animals ranges in the Mount Dome region of California.

Much has been written about the decline of the antelope and the danger of its early extinction, but that is not the burning question with this herd. The question concerns itself with safeguarding a future food supply before the Taylor Grazing Act renders it impossible to provide for their needs.

This fleet-footed inhabitant of the sagebrush plains has been brought back from the desperately low point reached in 1920 by a combination of complete protection and control of predatory animals, particularly on their fawning grounds.

Since the beginning of the Biological Survey's predatory animal operations, the personnel of this bureau has been greatly interested in these unique big game animals, and posi-



This is good antelope range—but the problem before conservationists is to safeguard a future food supply to provide for the needs of the herds before pending legislation marks their doom.

five steps have been taken to preserve them. Between 1915 and 1934, hunters under the direction of E. R. Sans reported taking 3,000 coyotes and bobcats on and about the present Charles Sheldon Antelope Refuge, in northern Nevada. In 1921, Charles G. Poole stationed a hunter in the Mount Dome region where a few antelope still remained. This man and his successors have taken 3,000 coyotes and bobcats from the area frequented by antelopes. While this was being carried on, the Oregon herd, which feeds on the eastern slope of Hart Mountain, was given protection by hunters under S. G. Jewett. More than 1,500 coyotes and bobcats were killed on this ancient antelope range.

That this combination of protection and predator control has been effective is demonstrated by the increase in antelope since the 1920 loss. The herd on the Charles Sheldon Refuge has increased from approximately 200 to about 2,000; that on Mount Dome from ninety to approximately 900; and the Oregon bank from 400 to more than 3,500. In addition, there is a fine herd in eastern Modoc County, California, which will bring the total to approximately 10,000 animals, where less than 1,000 existed fifteen years ago.

This attack upon the two principal factors contributing to their decrease has been effective in restoring the herds, but there are still many problems to solve before the future of the antelope is secure.

At present the animals on Hart Mountain are there purely on sufferance of the stockmen, with no assurance of the future. Antelope and sheep come into more or less direct competition for feed and with the final disposition of the Public Domain at hand under the Taylor Grazing Act, it is absolutely imperative that provision be made for this last great herd of Oregon pronghorns. A suitable area should be available on Hart Mountain and the dry lakes to the east to provide summer feed and fawning grounds. Winter range for this herd should be provided in Oregon or southeast in Nevada near the Charles Sheldon Refuge, to which considerable numbers of the Oregon antelope move in winter.

The Charles Sheldon herd already enjoys a fenced summer range of 34,000 acres, and rehabilitation on this range made appreciable progress during the summer of 1935. Through the National Association of Audubon Societies and the Boone and Crockett Club, funds were provided to purchase the private lands in the refuge and a Public Works Project provided the fence, administration buildings, and equipment for building patrol roads and firebreaks.

Neither of these two main herds has adequate provision for winter feed, and a combination of long continued subnormal rainfall and overgrazing has so destroyed the range that the animals are in danger of starvation during the first severe winter. The purchase of the private lands to the east of the Charles Sheldon Refuge and those within the proposed Hart Mountain area are necessary before the needs of the animals are met.

The Biological Survey, as well as many national conservation organizations, is asking that provision be made

for this and similar valuable game herds on the Public Domain before the lands are allocated for grazing under the Taylor Act.

On a few such areas, less than six per cent of the 173,000,000 acres that still remain as unappropriated Public Domain, conservationists are asking that the wildlife be given a preferred right over livestock. On the remainder they are willing that game be given a secondary place. This seems indeed a modest request, particularly when no suggestion has been made that grazing be excluded from these areas. All that is asked is that preferential rights be granted to the game herds now existing there.

Unless such action is taken the future of these fleet-footed monarchs of the sage plains is dubious indeed. They face the imminent danger of starvation with the first severe winter, and gradual elimination if some last remnant of their hereditary range is not given them.

Just at present pronghorns are on the upgrade and a visitor can see from 200 to 400 or more on a day's ride across the high plateau of Yellow Mountain, in the Charles Sheldon Refuge, or the sage plains and rolling foothills that are Hart Mountain.

There time after time single animals or little bands will race a car through the sage—always attempting to cross ahead of it. Once this objective is gained the animals slow down and often stop within a hundred yards to stare in triumph at the loser. On the dry lake beds I have frequently paced the antelope at a speed of forty-five miles an hour, which seems to be about the average top gait, although once in a while an old buck during the fall rutting season and in top condition will manage a speed of fifty, perhaps fifty-five, for short spurts.

Eternal alertness is the price of life for the antelope in that vast open country, and without

constant vigilance on the part of conservationists this unique American animal will vanish from the earth.

Aside from man and his activities in hunting and livestock grazing, the coyote is the greatest menace that the pronghorn has to face.

E. R. Sans, who has watched over the Charles Sheldon herd for many years, and who spent his own funds out of a modest government salary to provide needed material for the protection of the antelope both before and since this refuge was established, has witnessed coyotes, working in pairs, strike down an adult antelope buck. He has stated that his observations lead him to believe that this accounts for the great number of bucks killed on the refuge. A buck will stop to fight, and while he is engaged with one coyote the other slips up from behind and drags him down. The does usually take to their heels and outrun the predator.

The predator loss is spectacular at times, even where their numbers have been satisfactorily controlled, but it is not at the present time an important factor in the destiny of the antelope.

Their fate will ultimately be decided by the supply of feed that can be reserved for their use.

### THE FOREST GUARD

High on a timbered mountain slope, his tiny cabin stands;  
The castle of a lonely king, who built it with his hands.

All day he rides or hikes the trails, that traverse his domain;  
His only enemy—a fire, his greatest friend—a rain.

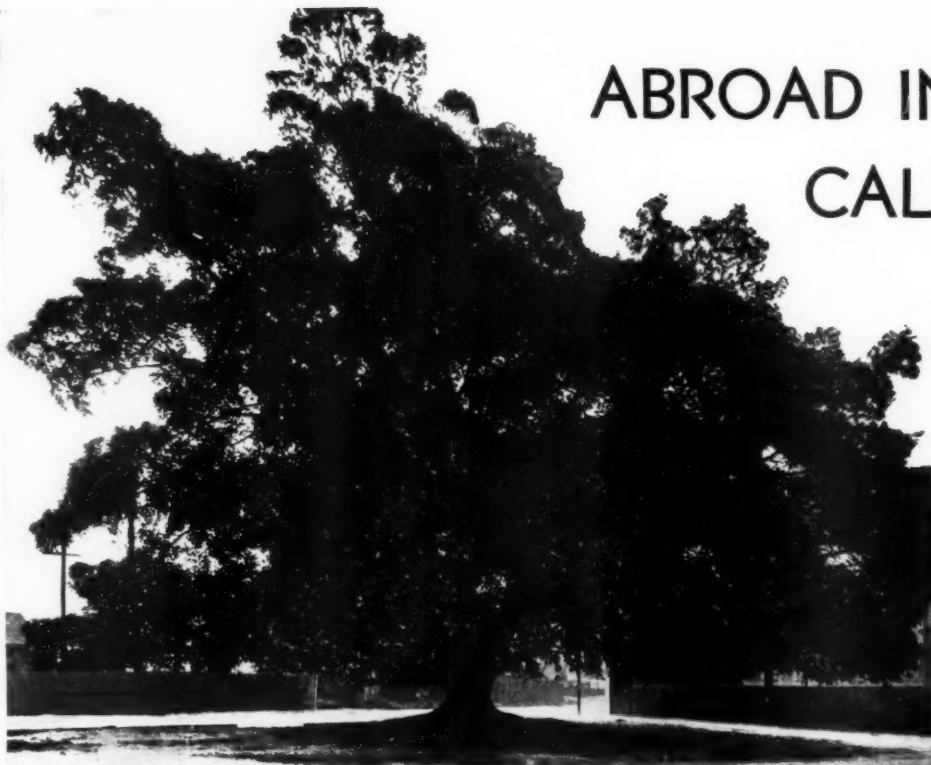
From lookout points on rugged heights, he scans a world of trees;  
In search of dreaded wisps of smoke, and tests the passing breeze.

A million feet of lordly spruce, toss ocean-like below.  
Across a verdant valley floor, that bears and wildcats know.

Far off he marks a deep green ridge, where cedars pierce the sky;  
And nearer, round a monarch pine, he sees an eagle fly.

A lonely life? Perhaps it is; yet when the night shuts down,  
He sits beside his hearth content, to smoke and dream of town.

—A Forest Guard



# ABROAD IN CALIFORNIA

By  
FARNSWORTH  
CROWDER

In California is found an American symposium of plants from the four corners of the world—including trees which have settled there and are as brothers now to the native sons. This is a Moreton Bay Fig.

ONCE popular among jibes at California was a cataloging of all the furnishings and foods that made life possible in the Golden State—chairs from Grand Rapids, stoves from St. Louis, coal from Colorado, frying pans from Chicago—everything from everywhere else. That is, except the fleas. They were Native Sons.

One of the keenest critical comments on the State appeared under the title, *The Great American Mirror*, in which the author described California as a kind of American symposium, a concentration of people and things from all corners of the nations. At Mission Inn, in Riverside, is one of the most amazing hodge-podge collections of art objects ever thrown together—Chinese carvings with Navajo rugs, Greek vases with African tom-toms. California is like that; the architecture is; and, for present purposes, so is the vegetation.

For two years I have lived on a small "ranch" in one of the older sections of a Pasadena suburb. Time at last permitting, I started making the acquaintance of the trees and shrubs on the place. Just outside the bedroom window were strangers to be spoken to—poinsettias out of Mexico; two South African members of the heath family, putting forth rosy, cup-shaped winter flowers; a Cape of Good Hope Plumbago, a mound of blue through more than half the year; and beyond it, to complete an African collection, a small specimen of the famed Silver Tree, native of Table Mountain, Cape Town.

Had I been living, unsuspecting, in an abandoned arboretum? I continued identifications on our acre, to find cypresses from Italy and China, palms from the Canary Islands and Brazil, eucalypts, a tulip tree and a Wonga-wonga vine from Australia, camphors from the Orient, an Aleppo pine from the Mediterranean. In all there are forty-three species of woody plants on the place, representative of every continent. More than twenty are non-American, only three—a yellow pine, a redwood and a laurel—are natives of California.

Our acre is typical. What New York is to races—a melting pot—California is to plants. Rolan S. Hoyt in his enumeration "for the casual reader" of plants which are "in

more or less common use" (*Planting Lists for Southern California*) names 565 species of immigrants as against 133 natives. The late great Dr. Ernest H. Wilson is responsible for the statement in his *Aristocrats of the Garden* that in California "a greater variety of woody plants can be successfully grown than in any similar area of the world."

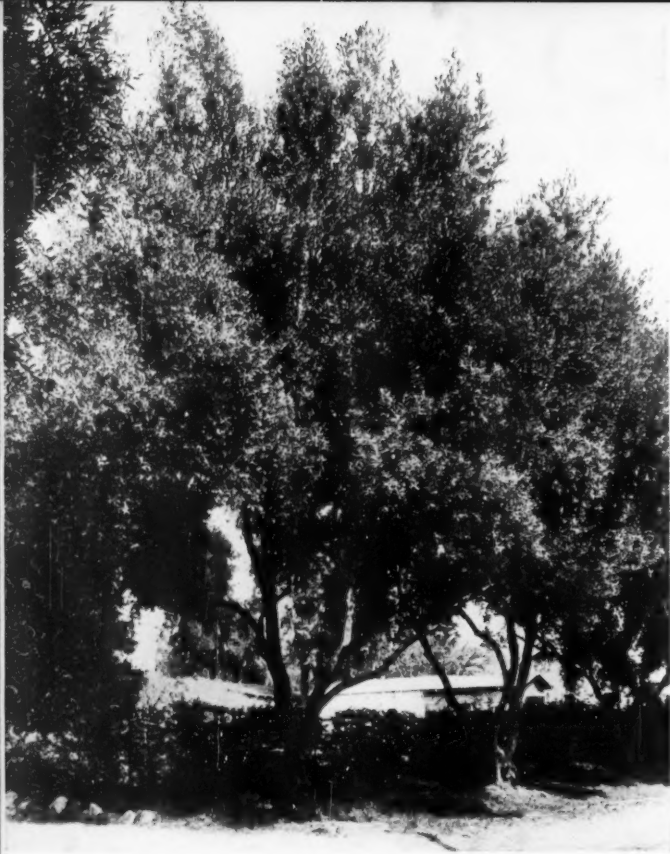
Such reserves as Kew Gardens, Arnold Arboretum and Golden Gate Park are deliberated, self-conscious collections within comparatively small limits. California, notably the southern third, is one wide miscellany of trees. The variations in temperature, altitude and humidity, the fact that the water supply is controllable, make possible the support of flora from the world around. For maintenance, this vast arboretum depends on man's ingenuity to supply it with water. One of the most prodigious sets of public works ever undertaken on earth is in progress and in prospect within or near the borders of the State to control and impound waters needed by the man-made forests.

Before the white man's coming, California, in its habitable lowlands, was, during the greater part of the year, a parched brown desolation. Conifers grew in mountain altitudes but the valleys were treeless and even on the immediate water courses only a few broad-leaved trees found rootage—native oaks, sycamores, cottonwoods, elders. The southern third of the State was clothed by the chaparral, a jungle-dense elfin-forest of greasewood and manzanita. Yet other broad areas—the Colorado, Mojave and Imperial Valley deserts—were almost barren to a cloudless sky.

Then, in 1769, Don Joseph de Galvez's Holy Expedition started out for California from Mexico. Into the packs went seeds for the first mission gardens. Within the same year, plantings had been made outside the church walls at San Diego. Rewards were meagre, for during eight and nine months no rain would fall. The soil was unfamiliar. At all the missions along *El Camino Real*, yields were so slim that the padres reported they were "like birds seeking a sad living for themselves and their Indians."

But before a decade had gone, water had been found and





Olive trees in an old garden. Among the first tree immigrants to the Golden State were the Biblical fruits—the fig, the olive, the grape and the date — welcomed and cultivated by the Mission Fathers for utilitarian purposes.

cultivation secrets discovered. The mission gardens were green shady spots on the dun coast lowlands. The British explorer, Vancouver, received from San Buenaventura Mission a gift of fruits and garden stuff that needed twenty mules to bear. He marveled at the orchards—"figs, oranges, grapes; pomegranates, bananas, sugar cane, indigo and . . . kitchen herbs . . . all cultivated within a few yards of the surf."

Appropriately, the first immigrants encouraged by the church fathers were the Biblical fruits—the fig, the olive, the grape and the date. Original olive trees stand about the old Missions at San Diego and San Fernando. Today the groves of the State yield thousands of tons of olives and oil. The Mission fig dates from the Franciscans. And the Mission grape, descendant of vines started by the padres, is a fruit *par excellence* in the greatest New World vineyard.

While most of the orchard plantings about the Missions were for utilitarian purposes, the date palm was grown for its leaves. Cultivated by man from remotest antiquity, it came to possess religious and sentimental as well as economic values. Its leaf was a symbol in Egyptian Isis worship. In Christian festival it is variously employed, as in commemoration of the triumphal entry of Jesus into Jerusalem. Lately, the date palm has acquired in California some of the importance it enjoyed in Mesopotamia for thousands of years, and enjoys today as the chief food of Araby and the Sahara. In sections of the Colorado Desert, it bears abundantly to the profit of a growing infant industry.

The special terms upon which the man-tended flora of California depend is illustrated by what happened to the old Mission Gardens. In 1835 fell the order of Secularization. By the time Captain Fremont arrived, ten years later, he reported the abandoned gardens overgrown with wild mustard and oats, the orchards and vineyards dying. Deserted

by man, it would not be many years before the lowlands of California would be brittle harvest for death. Water is the saving magician.

There are a few trees so conspicuous that even the most casual visitor will notice them and demand their names—the eucalypts, the pepper and the palms. Of these the eucalyptus was an argonaut, the palms had a scattering introduction and the pepper slipped in without having its entry properly recorded.

A common evergreen border for California avenues, the pepper is a lacy "weeping" tree. Native of the Andean slopes of South America, its seeds were sent to Europe and Mexico by the Spanish conquerors of the Incas as the fruit of *arbol del Peru*—Tree of Peru. For the Incas, it had mystic properties. Its juices healed their wounds; its wood was a source of charcoal and a material for wagon axles, beams and pillars; from the sugary layer of its red berries came honey, vinegar and *chicha de molle*, one of the world's most terrific drinks. The pepper (miscalled) reached California from Mexico, probably with the padres.

The eucalypts are even more incapable of being ignored. From great spindling heights, their feathery crowns make graceful salutation to the levels of less aspiring green at their feet. They came from Australia somewhere around 1850. Of miraculous growth, attaining fifty feet in five or six years, they were welcomed. Speculators, counting on their wood, tough as hickory, set out hundreds of acres of them. But the stands, without irrigation, were disappointing; the timber was slow to "cure" and quick to crack. The

A date palm from the Canary Islands. Grown chiefly for its leaves, this tree has been cultivated by man from remotest antiquity. A symbol in the worship of Isis by the Egyptians, its leaf in the Christian religion is used at Eastertide to commemorate the triumphal entry of Jesus into Jerusalem.





eucalyptus is grown in California today for its striking decorative qualities, for firewood and as a windbreak. Most commonly seen is the "blue gum." It achieves heights that make it one of the tallest living forms: the French scientist, Labillardiere, botanizing in Australia, claimed that he trained a telescope on the loftiest eucalypts to make floral identification and brought down specimens with a gun.

The blue gum—the eucalypts exude astringent, fragrant

them offensively exotic and out of place. The most elegant of the tribe is the very trim Canary Island date, which raises its great symmetrical umbrella to heights of seventy feet. Africa and Siam have sent palms. From Chile has come the honey palm, whose sugary sap, boiled down, is the maple syrup of the Andeans; from China the "sore-throat" palm with fronds like a wind mill; from Mexico the beautiful blue palm; from Australia the cabbage palm, whose center, cut



Two of the most conspicuous and beautiful of California's naturalized tree citizens are the eucalypts and the peppers. Native of South America, the seeds of the pepper tree were sent to Europe and Mexico by the Spanish conquerors of the Incas, who believed firmly in the mystical healing properties of the tree. It is believed the padres brought the pepper tree first to California, where it is widely used, its form and lacy beauty making it an ideal evergreen avenue border. The eucalypts—seen at the left—quick growing and exquisitely beautiful—are from Europe. They are famed chiefly for their decorative qualities, for firewood and as windbreaks.

gums—is a familiar tree in southern Europe, whither it was brought because of a reported ability to eliminate malaria—a reputation not without base, since the tree's power to suck up moisture dried out whole reaches of swamp in the Roman Campagna.

California has only one palm of its own, the Washington or fan palm, found in groves along the western beach lines of the sea that once lay within the Colorado Desert. All the others have been introduced and there are people who find

out and shredded, is eaten like cole slaw. Annoying as they may be to certain esthetic sensibilities, the palms give the Californian the desired assurance that he will not be shoveling snow this winter the way he used to do back in Oshkosh.

Another immigrant from Australia is the acacia. It, like the eucalyptus, came in the gold-rush days. Down the spring months, from February to May, the acacias are identifiable everywhere for their dense extravagance of bloom—a kind of chalk-yellow suds cascading from crown to earth. Under



And this tree curiosity has well been called "a pretzel maker's design for a pine." The Monkey Puzzle tree, which is a relative of the Norfolk Island pine, came to England from Chile, and thence to the United States.

Such strangers as this Brazilian Coral, as well as natives of India, Assam and the Argentine — full of years, dignity and beauty — will greet the traveler bitten with wanderlust, if he will but go "abroad in California."



the rather barn-yard name of "wattle," it is Australia's national flower. On Wattle Day, windows are decorated and flags flown; everyone wears a sprig of flowers; on this one occasion soldiers and sailors of the Crown are permitted to pin a decoration on their uniforms. The tree's name came to it in a good cause: the first settlers in Australia built their dwellings of split saplings, inter-weaving or "wattling" them to make a flat wall surface.

Of wattle or acacia wood, the aborigines fashioned their boomerangs. They ground leaves and twigs to a pulp and threw them in the water, where a narcotic ingredient doped the fish and made them easy to catch by hand. The metal-like value of acacia timber has been respected for ages. The wood of a near-eastern species was built into the Arks of the Covenant and the Tabernacle.

Californians admire the acacias for their spring fury of bloom and their year-round shade. Some 500 species, most of them native to Australia, are known. The variations are wide. Within a short radius of my home, I found a number of them—a "raspberry jam tree," throwing off the odor of ripe berries that have stood in the sun; a "stinking wattle" that smells vilely after rain; a "silk tree," whose long thread-like yellow stamens give it the obvious name; a "weeping myall," whose wood has the exact sweetness of a bunch of violets; an acacia whose leaflets, at nightfall, curl and droop in slumber, as if the day had wilted them to exhaustion.

Two other Australians of the many in California deserve mention. There is the Cassowary tree, so-called because of the resemblance to the plumage of the cassowary bird. Mark Twain met it and sketched it deftly in words. "Its foliage was as fine as hair, apparently, and its mass sphered itself about the naked, straight stem like an explosion of misty smoke . . . and as far as you could see the tree itself you could see also the ink-black blot of its shadow on the shining green carpet at its feet."

Aside from its curious beauty, the Cassowary has its uses. It is a favorite firewood because its ash retains heat for astonishing periods. From its bark the Tahitians make a dye for their *tapa* cloth. Its green fruits, "oak apples," are munched by Australian children. The wood of one variety cleaves so perfectly that it can be split into shingles with an ax.

Another street tree from the Southern Continent, and a puzzler, is a handsome species that (Continuing on page 613)

# NO CLOSED SEASON—NO BAG LIMIT

By DUANE H. KIPP

Mallards coming in. Note how the wings are set to facilitate stopping. Waterfowl frequently extend their legs, and toes also, using their feet as brakes.

ON the Sunday before the 1934 duck season opened, my partner and I shot more than 500 mallards, teal and wood duck, mostly locally hatched young birds.

This is truly a remarkable bag considering that American waterfowl populations are supposed to have reached an all-time low, and we were proud of it.

As with other bags, and we have made larger ones both in and out of season, we followed the best principles of sportsmanship, even though some of the birds were shot on the water. My partner was armed with a high-speed still camera, and I with a movie machine.

Our bag consisted of about fifty fine still pictures, and 600 feet of motion picture negative. There are some who might remark pointedly that celluloid film and glass plates make poor eating. True. But the roast beef sandwiches and thermos bottle coffee tasted pretty good in the marsh that noon, and to continue an epicurean figure of speech, I might say that we "ate our cake and had it too!" I mean that we had all the pleasure, all the thrill of gun hunting; yet those fine birds will live forever in the minds of the thousands of school children and others who will see them in pictures.

This is not intended as a diatribe against gun-hunters. Far from it. I hold little sympathy with the sentimentalist who professes a belief in absolute closed seasons as the panacea for all our wildlife ills. The purpose of conserva-

tion is not merely to save; rather it is to use in such a way that perpetual proper use is made possible. Neither do I have sympathy for those who talk of the cruelty of killing wildlife. As Theodore Roosevelt pointed out so clearly, no death in the wild is easy. A fawn or doe, torn down by a wolf does not die a pleasant death. Nor is death by starvation, by forest fire, or by freezing particularly easy. A well-placed bullet or load of shot probably brings the most humane end to which a game animal or bird can come.

The passion for closing seasons, reducing bag limits and restricting hunting hours and methods, and letting efforts stop there, is not the way to increase wildlife. Such a passion is the logical result of a lazy American habit expressed in the characteristic bromide "there ought to be a law against it." Legislation alone solves nothing. Unless there is sympathetic and cooperative public opinion backing up laws, they can accomplish little. The conservation program, or any great public movement, will succeed in direct proportion, not to the number of laws, but to the amount of sympathetic public opinion it can generate.

It was with this thought in mind that the Wisconsin Conservation Department several years ago started to compile a library of motion picture films and lantern slides that would tell the story of the out-of-doors. Today the department has over fifty reels of motion pictures and several hundred lantern slides which are in constant use in the

Certain "tricks of the trade" tend to liven a picture. In this case, shooting directly into the sun made an interesting picture of what might otherwise have been drab and ordinary,—had the light been at the photographer's back.





## AMERICAN FORESTS



A perfect shot—more by luck than by good management—of a ruffed grouse, strutting back and forth on his drumming log, putting on his show.



Mother prairie grouse and the first chick, which had not even dried off when the picture was made. The chick is not camera conscious, despite its tender age.

schools and among sportsmen's clubs in the State. Several of the reels have been produced cooperatively with other conservation and educational agencies.

To me, the taking of these pictures has opened up an entrancing new avocation which has assumed such proportions that it is now my principal interest. The transition from gun hunter to camera hunter is now almost complete; but it has come without leaving any distaste for killing. A primary purpose of game conservation is to provide surpluses which may be hunted; and if today

I find more pleasure in hunting with a camera, that is no reason it is wrong for the other fellow to use a gun.

Camera hunting is no "sissy" sport. It requires infinitely more patience and thought than gun hunting. For one thing a camera hunter cannot take advantage of the half hour before sunrise as duck hunters have done in the past. Photography requires heavier, larger and bulkier equipment than hunting, thus adding to difficulties. And, as an almost infallible rule, the photographer, to get good pictures, must get closer to his quarry than a man with a gun. While it is true that telephoto lenses will carry farther than a load of shot, most good pictures are the result of closer work with shorter lenses. This means more expert stalking, and infinitely more patience and disregard for comfort.

Although success in photography depends in a large measure upon such things as aperture, speed, composition and cross-lighting, many of the best wildlife pictures have been the result of good luck. There seems to be a special providence that watches over the good fortunes of some outdoor photographers.

An experience to illustrate this occurred in central Wisconsin several years ago while a motion picture dealing with prairie chickens was being made. We had several blinds built in front of nests, one of which was located in a wild pasture. To prevent cows from trampling the nest, a single strand of barbed wire was strung to enclose both the nest and the blind. Then we spent many hours watching, studying, and photographing. Despite all of this the bird, but six feet from the camera, refused to be frightened away, though she would flush occasionally, even when we spoke in a normal tone of voice. Undoubtedly she had never had occasion to associate danger with the sound of the human voice, or with the smell of tobacco, for we smoked when the spirit moved us. Her sense of danger, however, was very acute with unusual movements. If we exposed the small lens of the camera in the front of the blind too suddenly, she would flush. Consequently, we arranged a very intricate system of curtains by which the lens could be exposed very gradually when her attention was not directly on the blind.

One afternoon we were idly wishing for a way to illustrate this sense of danger when a cow came up to the improvised fence, saw the prairie chicken, and stretched her neck down and sniffed. The bird exhibited no fear, but seemingly piqued, she pecked at the tender nose of the cow. As a matter of fact, the cow showed much more concern than did the bird. In this way, by sheer luck, we were able to illustrate exactly what we wanted. It was a scene impossible to stage, and one of those unlikely experiences that would be disbelieved if we could not prove it by the "seein' is believin'" method.

Photographing wildlife and outdoor activities presents problems unknown to the studio operator. There can be no rehearsals or staging with birds and animals. Lack of proper light at the crucial moment has caused many a lament, tragic

A large buck a long way from home. The movie camera is in the boat partly showing in the picture. A fine action shot, and worth much effort to its maker.





## AMERICAN FORESTS

always and frequently profane.

One time we found a partridge, or ruffed grouse, drumming log surrounded and overhung by deep foliage. At imminent risk to life and limb, we cut out some branches high above to let in morning and afternoon light. From the blind early the next morning I watched a veritable shaft of light striking the log at just the right place. But as I waited the spot became smaller as the sun moved, and I feared that no bird would come in time. Then again the watchful providence appeared in the form of the most beautiful male partridge I have ever seen. He started drumming almost immediately, which is unusual, and for which I thanked my special providence.

But imagine my consternation when I looked through the finder and couldn't see the bird! He had moved to the far end of the log, in shade, and the brilliant sunlight was between us—an impossible shot. Faith in special providence was fading fast when the beautiful bird strutted back and put on his show exactly in the center of the spotlight.

Camera hunters come to know wildlife much more intimately than do most gun hunters. For the most part this hunting is done during closed seasons; and it is remarkable how much more approachable birds are during the spring, and particularly during the mating and later the nesting seasons. It is also remarkable how quickly birds learn when and where they are safe.

During a few days each spring for the last four years we have been collecting footage for a reel on wild geese. Ordinarily the warriest of birds, the same flocks would return to the water, directly in front of the blind, several times after being frightened away. Each time they were less wary.

Birds on the nest, due to the mother instinct, will brave many dangers they would avoid under other circumstances. One time during a rain storm we even removed a chick from under a sharp-tailed grouse without her flushing. But she wouldn't stand for a second attempt.

Again, on the day before a nest was due to hatch out, we worried the bird by imitating the peep of a chick. The old girl was nearly frantic. She searched all around and even tried to get under the burlap and into the blind to determine the source of the sound.

Luck is not always of the good variety, however. One time when I must have displeased the special providence, I lost an opportunity to make some remarkable footage, through no fault of my own. It was a cold afternoon late in November, and I had spent the entire day in a blind on a beaver dam, with the ice freezing about my feet. Early in the morning we had opened up the dam a little at a point about twenty feet from the blind to let the water down. Beaver are very chary about their water supply in the fall of the year, as they know their safety through the coming winter depends upon maintaining a pond. It was our thought that opening the dam early in the morning would bring the beaver out during the day to repair



A fifty-four pound wildcat, formerly in the Wisconsin State Game Farm Zoo, and which "jumped" the author immediately after this picture was taken.



An example of beautiful composition, possible even with poor light and a homely subject, is seen in this photograph of sleighing logs on an ice road.

it and that they might be photographed. The blind had been in position for several days so that the beaver, which worked on the dam every night, were thoroughly accustomed to it.

A whole day in sub-freezing weather in a small blind, without even being able to smoke, is a task to try the patience of anyone. I thought I was to be rewarded though, when shortly after three, in rapidly failing light, a large beaver came surreptitiously down the flowage, swimming under water and (Continuing on page 611)

"They're off!" at a coon hound trial. The position of the camera—and the author—flat on the ground, made possible an unusual and effective perspective.





A great gnarled monarch, an oak, rears its head high above the jungle growth, guarding the entrance to this tropical paradise.

"Here in these woods, in this hammock, among these trees, it is easy for us to get close to nature . . . in the woods are His temples."

# PARADISE FOUND

THAT'S WHAT THEY SAY ABOUT  
FLORIDA'S HIGHLANDS HAMMOCK

By W. C. McCORMICK

**W**HEN you seek tropical atmosphere and scenery in the future you need not leave the United States to find it. When you wish to turn the pages back eight hundred or a thousand years you can do so right here at home. If you are a scientist, naturalist, or botanist, a real Eden awaits you at Highlands Hammock, near Sebring, Florida.

A great, moss-draped live oak, more than 900 years old, and with a limb fourteen feet in girth, arches over its entrance roadway. A great gnarled monarch of a laurel oak, thirty-one feet in circumference, rears its head high above its jungle growth. It has been there for 800 years, watching the conflicts of nature. You will find a confusion of tropical undergrowth and mighty forest trees intermixed with stately palms, some of which rise into the sunlight for more than a hundred feet; serpentine ferns, from eight to ten feet in length, sway gently in the warm sub-tropical breeze, their root system firmly embedded in the very topmost crown of the lofty palms.

Surrounded by water and tropical growth, this Eden for centuries has been almost inaccessible and therefore able to withstand the ruthless hand of man during the period of colonization and land development in Florida. Through the generosity of the late Margaret Shippen Roebling, however, it is now easily accessible, but as a plant and bird sanctuary dedicated to public enlightenment and enjoyment. It was so proclaimed on March 15, 1931. After viewing this Eden from an airplane, this notable and nature-loving woman purchased 2,000 acres to be perpetuated for the enjoyment of other nature lovers. The work, so ably planned and begun by Mrs. Roebling prior to her death, has been carried on by her husband, John A. Roebling, and today Highlands Hammock stands as a living monument to the memory of a wonderful woman.

Roads and foot trails have been built through the hammock to make it accessible. Many beautiful old live oaks, almost covered with the Spanish moss which was gradually smothering them, have been treated and preserved, and much of the moss and other air plants removed to provide air and light. Today, with a new lease on life, these age-old monarchs face life with new vigor.



## AMERICAN FORESTS

But with these improvements the natural state of the park has not been violated. The roads are narrow and winding, almost hidden in the jungle. The trails over which nature lovers may travel for miles afoot are not blazed. The whole area is enclosed with a small meshed steel wire fence to exclude stock and predators.

As a single forest fire could destroy this Eden, no expense has been spared in precautionary measures. Inside the fence, completely surrounding the tract, is a wide fire line cleared of all vegetation. Patrolmen are constantly on duty, guarding against fire and predators. As an additional precaution, just inside of the fire line is a waterway, or moat. A series of concrete dams has been constructed on the several creeks making up the main drainage ditch, thus insuring sufficient moisture at all times of the year for the swamp growth.

In the heart of the hammock are several small lakes with a luxuriant growth of native water plants. As these lakes dry up during the winter months, a pipe line has been laid along a carefully selected route which has in no way damaged the vegetation. Through these pipes a steady flow of water is carried into the lakes, maintaining them and their water-loving vegetation the year around.

In this Paradise one will find, in addition to the oaks and hickories, the Florida pignut—and there is a giant there which measures seven feet in circumference. There will be found gums, some measuring eight feet in girth; American elms, twelve feet in circumference; cypress in dense stands; ash, maple, persimmon, and many other sub-tropical and temperate zone trees. Intermixed are stately pines, wild sour oranges, wild limes—a cousin of the lime of commerce—and a grove of prickly ash. And growing in the rich, moist soil, under the canopy of shade, will be found a riot of vines, plants and small shrubs—dogwood, snowballs, wild coffee, wild avocado, and last, but not least, a great number of palms.

Cabbage palms predominate, giving to this wonderland a tropical touch that leaves a lasting impression. There are royal, cocoanut and other palms. One will see the James palmetto, discovered in 1927 by Dr. J. E. Small, head curator of the New York Botanical Garden, and named in honor of Mrs. Arthur Curtiss James, and many lazy saw palmettos. The needle palm, the most beautiful of the native dwarf palms, is present—with its sheath of steel-like needles, eight to ten inches long.

Following the paths one finds much at which to marvel: An oak and a hickory with roots so well ingrown into each other that it is hard to determine where one stops and the other begins; a great oak rises ten feet into the air, then abruptly bends at right angles and grows in a semi-circle for nearly seventy feet, while upright limbs have developed into great trees rising to a height of sixty feet. There are hundreds of tons of weight being borne by this old oak as it forms this semi-circle—yet there is no noticeable strain. Clumps of hardwood and palms grow out of the same root mound—fighting for supremacy, each crowding upward to the light, each extracting from the earth its fair share of nourishment.

On the western edge of the hammock is historic Little Charlie Bowlegs Creek, named for a famous Seminole Indian. There will be found great cypress trees, through the branches of (Continuing on page 610)



Rex Beach has said—"Nowhere in the State is there a more perfect paradise, a more natural park." This is a look north from the Loop Road towards the Canal Bank Road in High-lands Hammock.



Nature has taken five hundred to a thousand years to perfect this beauty. This is one of the small lakes in the Hammock.



# PROSPECTOR OF JACKSON HOLE

By FRITIOF M. FRYXELL

Photographs by A. M. Austin

**I**N the 80's and 90's it was widely supposed that the Snake River gravels of Jackson Hole, in Wyoming, contained workable deposits of placer gold, and there were many who came to the region, lured by such reports and a prospector's eternal optimism.

Color, indeed, could be struck most anywhere along the river, but the gold of which it gave promise proved discouragingly scarce and elusive. None found what in fairness to the word could be called a fortune. Few found sufficient gold to maintain for any length of time even the most frugal living—and who can live more frugally than the itinerant prospector? So through these decades prospectors quietly came and sooner or later as quietly left, leaving no traces of their visit more substantial than the scattered prospect holes still to be seen along the bars of the Snake River. Even today a prospector occasionally finds his way into the valley and, like a ghost out of the past, may be seen on some river bar, patiently panning. Probably he, too, will drift on. It is apparent now that the wealth of Jackson Hole lies not in gold-bearing gravels but in the matchless beauty of its snow-covered hills and the tonic qualities of its mountain air and streams.

But one prospector stayed. Mysterious in life, Uncle Jack Davis has become one of the most shadowy figures in the past of Jackson Hole, little more than a name except to those few still left of an older generation who knew him. He deserves to be remembered—deserves it because of his singular story, and because he has the distinction historically of having been the only confirmed prospector in Jackson Hole.

He was "uncle" only by courtesy for he lived a lonely hermit until his death; and so far as is known he left no relatives. He first appeared in 1887 as one of the throng of miners drawn irresistibly into that maelstrom of the gold excitements, Virginia City, Montana. In a Virginia City saloon he became involved in a brawl and struck a man down, struck him too hard and killed him. Davis, it should be remarked, was a man of herculean strength and, at the time of this accident, he was drunk. Believing himself slated for the usual treatment prescribed by Montana justice at the time—quick trial and hanging—he fled the city.

Davis reappeared shortly after this in Jackson Hole, the resort of more than one man with a past, and in the most isolated corner of that isolated region he began life anew. At the south end of the Hole, a few miles down the Grand Canyon, he took out a claim on the south side of the Snake River near a little tributary known as Bailey Creek. There he built a log cabin, the humblest structure



Courtesy W. B. Sheppard

Uncle Jack Davis. This is one of the few photographs to have been taken of Uncle Jack—just a few years before his death.

imaginable—one room, no windows, a single door hung on rawhide hinges. This primitive shack was Jack Davis's home for nearly a quarter of a century. True, more than two decades later he built himself a new cabin, but death knocked at the door of the old one before he could move.

Down in the bottom of this magnificent canyon which he had almost to himself, Davis plied his old trade of placer mining, putting in the usual crude system of sluice boxes and ditches. In addition he cultivated a patch of ground which yielded vegetables sufficient for his own needs and for an occasional trade. The income from both sources was ridiculously small, but his needs were modest enough. Primarily he wished peace and seclusion, and these he found.

The Virginia City episode never ceased to trouble him. It made him a recluse for life. He lived alone, and limited his associates almost entirely to the few neighbors who, as years passed, came to share his canyon or that of the

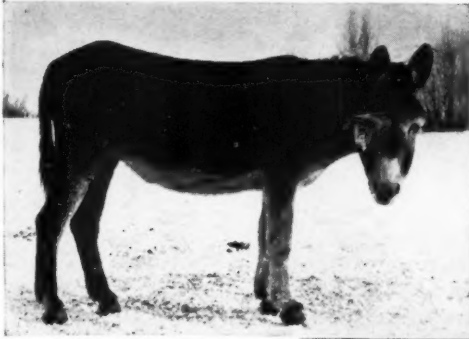
nearby Hoback River. Trips to town were made only when necessary, and were brief. On such occasions it was his practice to cross the Snake near his cabin and hike or snowshoe up the west side to the store at Menor's Ferry, fifty miles distant. Having made his purchases he shouldered them and returned by the same route. In the course of his journey he saw and talked to few. He rarely went to Jackson, the only town in the region. He is said to have been a sober man, afraid of drink.

Davis's solitary habits sprang from a haunting fear of pursuit, not from dislike of companionship. The presence of a stranger in the region made him uneasy, and he did not rest until his mission was known, sometimes pressing a friend into service to ascertain a stranger's business. He never allowed his photograph to be taken. Apparently his fears had little foundation, for no one from "outside" ever came in after him. Very likely Virginia City soon forgot him.

Davis's past was known to only one or two of the most intimate of his neighbors. They kept it to themselves. Nor would it have mattered had his story been more generally known—not in Jackson Hole where such a distinction was by no means unique, and where a man was judged for what he was, not for what he had been, or had done.

Though a strange recluse, he was a man to be admired and respected. Physically he was tall, broad, of magnificently erect carriage—a blue-eyed, full-bearded giant. Stories of his strength still enjoy currency. According to one of these, Uncle Jack once lifted a casting which on its shipping bill was credited with weighing 900 pounds





Calamity Jane, "the inevitable prospector's burro that accompanied Jack in his flight to Jackson Hole." When more than forty years old, she died and was buried in Uncle Jack's private graveyard.

—lifted it by slipping a loop of rope under it, passing the loop over his shoulders, and straightening his back. And it was well known that for all his solitary habits, Uncle Jack was kind and generous as he was strong.

It seems as though for the remainder of his days Uncle Jack did penance for his one great mistake. He impressed one as trying hard to do the right thing by everyone and everything. Such was his love for birds and animals that he would go hungry rather than shoot them. To callers at his shack he explained the absence of meat from the table by a stock alibi so lame and transparent that it fooled no one: "He'd eat so much meat lately that he decided to lay off it for awhile." His unwillingness to kill turned him into a vegetarian—there in the midst of the best hunting



Johnny Counts and the newly-adopted "Pitchfork Tillman."



Buster leads in a new friend from the wild bunch.

country in America. A hermit, yet Uncle Jack was hardly lonely. In birds and beasts of the canyon he found a substitute for human companionship. The wild creatures about him soon ceased to be wild. His family of pets included Lucy, a doe who lived with him for many years; Buster, her fawn, whom the coyotes finally killed; two cats—Pitchfork Tillman, named for a prominent political figure of the times, and Nick Wilson, much given to night life, so named after a prominent Mormon pioneer of the valley; and a number of tame squirrels and bluebirds. Not to mention Dan, the old horse, and Calamity Jane, the inevitable prospector's burro, which had accompanied Jack in his flight to Jackson Hole,



where it finally died at the advanced age of forty years. Maintaining peace in such a family kept Uncle Jack from becoming lonely.

Al Austin, who for many years was forest ranger in this region, and who in time came to enjoy Uncle Jack's closest confidence, presents an unforgettable picture of the old man and his family. Dropping in at mealtime for a friendly call, Austin would find Uncle Jack in his cabin surrounded by his pets, each clamoring to be fed and each jealous of attention bestowed on any creature other than itself. If the bluebirds were favored, (Continuing on page 612)

Uncle Jack's cabin—the humble abode in which he lived for nearly a century—one room, no windows, and a single door hung on rawhide hinges. On the roof may be seen the sluice box from which Uncle Jack's coffin was made.



Lake Placid from the Summit of Whiteface Mountain

## President Leads Great Conservation Rally

Roosevelt Envisions New Progress as The American Forestry Association Observes Sixtieth Anniversary in Coordination with Program to Celebrate Fifty Years of Conservation in New York State

A PERMANENT Civilian Conservation Corps, through which 300,000 American youths will pass each year, the development of a plan of sustained yield management on private forest lands, and the creation of an extensive forest credit system for timberland owners were envisioned as the next steps in the development of the nation's conservation program by President Franklin D. Roosevelt in his address before the great anniversary rallies of The American Forestry Association and New York State at Lake Placid, New York, on September 14.

Speaking to several thousand foresters, conservationists and sportsmen assembled from all parts of the country to celebrate the sixtieth anniversary of the Association and fifty years of conservation in New York State, the President said:

"The camps of the Civilian Conservation Corps, in my judgment, are going to be a permanent part of the policy of the United States Government." He pointed to the fact that more than 1,000,000 young men have served in the Corps in its two years of existence, adding that "if things go along as they are now with a general pick-up in business, the people can well afford to have 300,000 young men go through these camps every year. There is enough work in sight in this State (New York) to continue the work of the Civilian Conservation Corps for a generation to come."

The President told his hearers that there has been great progress in state forestry and conservation practices, "but

one of our problems is to extend the knowledge of conservation to the operators of private lands." His goal, he explained, is to have these lands, as well as state and national lands, developed on a sustained yield basis.

In this manner, he declared, there could be eliminated "evils of the past which often result in thriving communities being left stranded by the wholesale destruction of timber surrounding them, as well as the problem of soil erosion, which has ruined large areas of formerly good land.

"If timber is treated as an annual crop it becomes a public asset, and I hope that Congress at its next session will pass legislation which will extend credit to the owners of timberland. There is no reason why the government and private banking institutions should not consider trees an asset as well as houses and other things on which they extend credit."

The President expressed his belief that "the spreading of the gospel of conservation" is being accomplished. "People are learning," he said. "They are more interested in protecting these great assets of nature which God has given us."

In dedicating the new highway to the summit of Whiteface Mountain, a memorial to New York State's soldiers who died in the World War, President Wilson's famous wartime slogan, "It can be done!", was employed by the President in commending the difficult engineering feat of building the scenic highway to the top of the Adirondacks.

"This highway," he said, "will enter the lives of our generation and of future generations, I believe,—more useful than anything else we could have created. For older persons who cannot climb and for millions of people who haven't the facilities for walking up mountains, we now have the means of their coming up here on four wheels."

The President's addresses were the highlights of a program participated in not only by the Association, the New York Conservation Council and the State Conservation Department, but by the New York Section of the Society of American Foresters which held its annual summer meeting in connection with the celebration.

Preceded by a series of sporting events, The American Forestry Association's annual banquet, on the evening of

Dr. Finley traced the influence of forest growth upon man, his literature and his living from the beginning of recorded time. To stand amid trees, he said, was to him "an indication that paradise has been regained."

Commissioner Osborne made an appeal for closer cooperation between wildlife conservationists and advocates of forestry. "If there is no possible synthesis between them," he said, "both are going to suffer. If a synthesis is possible, both will benefit. For that reason it is of the highest importance both to forestry and to wildlife management that a synthesis be worked out, even though it demands a compromise or a departure from pure theory on one side or the other, or both."

J. N. "Ding" Darling, noted cartoonist and chief of the



Wide World Photo

President Roosevelt dedicating the Memorial Highway to the Summit of Whiteface Mountain. Just before this, at Lake Placid, he envisioned a permanent Civilian Conservation Corps, through which 300,000 young men would pass each year, a plan of sustained yield management on private forest lands, and an extensive forest credit system as the next steps in the development of the nation's conservation program.

September 12, inaugurated the three-day observance with a capacity attendance of 700 people. Henry S. Graves, president of the Association, and dean of the Yale Forest School, served as toastmaster. The speakers were F. A. Silcox, chief of the United States Forest Service, Dr. John H. Finley, associate editor of the *New York Times*, and Lithgow Osborne, conservation commissioner of New York State.

Mr. Silcox, after reviewing the history and accomplishments of forest conservation in this country, declared that "a national forest policy is necessary to coordinate public, private, Federal and state interests as regards timber resources." He warned against the inroads politics has made in forest and conservation work in some states, declaring, "forestry is a profession that will not tolerate political dominance."

United States Biological Survey, addressing the conservationists at an outdoor Adirondacks campfire dinner on the evening of September 13, paid a tribute to The American Forestry Association on its "vigorous leadership in the restoration of nature's environment." The organization, he said, is the trail blazer in American conservation.

"But before we pin too many medals on ourselves," Mr. Darling declared, "we should look down the race track ahead and note that cloud of dust which marks the sprinting figure of waste and destruction which has just 200 years' start on us. For 200 years we have despoiled this continent of its natural resources like a pestilential blight. While New York is going ahead, seventy-five per cent of the remainder of the states are running in reverse."

So much public sentiment has been recruited to the cause of conservation in recent years, Mr. Darling said,



so many promising proposals have been launched, so much enthusiasm has been generated that "I have a haunting fear that those who sit at home and dream that conservation is being realized may not know how little the organized agencies for restoration measure up to the job ahead.

"If we had a national conservation bookkeeper keeping a record of the gains and losses for our natural resources his book would show not only red for the past but a continuing annual deficit which is alarming. One of our greatest handicaps in the pursuit of our conservation objectives is the number of separate divisions into which conservation may be segregated and each one claiming the title of conservationist.

"Foresters are conservationists for forestry; soil conservationists are conservationists of the soil. And there are conservationists of water resources, health, wildlife and recreation, but all too few of them knowing the consequences of their single-track activities on the contingent agencies. Health conservationists in their ardent pursuit of mosquitoes have drained the water from many a feed patch for wildlife; soil erosion conservationists are recreating new breeding grounds for mosquitoes; water conservationists are unwittingly making biological deserts of our waterways; and forest conservationists are in their single-track pursuit of trees driving wildlife resources to starvation rations."

Forestry, he concluded, is to be credited with the first major step toward national conservation. "It is the most powerfully organized and equipped agency in the field and by its seniority it should be the leader in the move to coordinate and correlate the other agencies."

Unveiling the tablet at Wilmington Notch to commemorate fifty years of conservation in New York State, Governor Herbert H. Lehman, of New York, called for a program expanding conservation activities in New York, where, he said, in fifty years the forest preserve has grown from 700,000 to 2,350,000 acres. "No area in this country or abroad offers more in scenic beauty, recreation and comfort than New York State," he declared, adding that "fruit already is being borne of the \$1,000,000 appropriated at the last session of the State legislature to create a publicity bureau in the State Conservation Department to acquaint persons outside the State of New York's outdoor attractions."

The outstanding feature of the Association's automobile field trip on September 13 was a tour of the Clifford R. Pettis Memorial Forest, where more than 3,000 acres were planted to coniferous trees between 1906 and 1909. At St. John's in the Wilderness members paid tribute at the grave of Mr. Pettis, former State superintendent of Lands and Forests.

The motorcade then visited the Lake Clear Nurseries where 42,000,000 young trees are growing preparatory for transplanting to State and privately owned lands, the Lake Clear Fish Hatchery, and the Fish Creek public camp grounds used annually by 30,000 campers. The return trip to Lake Placid was made by way of Saranac Lake.

Concluding the celebration on September 14 was a pageant depicting fifty years of conservation in New York State. This event, viewed by more than 2,000 people, opened with a scene of the Algonquin Indians, the first lords of the Adirondacks, around their council fire. Then came the first trappers and the Indians departed, leaving

the land to the white man. Following the trappers came the surveyors, staking out the land for settlers. Then came the destruction of the forests by ruthless lumber crews.

Following this destruction came the birth of conservation—re-forestation activities, fire protection, restoration of fish and game. Particularly dramatic was the episode dealing with fire protection. As a fire was set the patrol airplane of the



Tribute at the grave of Clifford R. Pettis, former director of Lands and Forests of New York State. William G. Howard, present director, placing wreath during the Association's trip to the Clifford R. Pettis Memorial Forest.

State Department of Conservation circled above and flashed an alarm to the rangers on the ground. Instantly the ground forces, with modern forest fire trucks and apparatus, went into action.

The pageant was climaxed by a colorful parade in which the State's forest rangers and game protectors—nearly 500 strong—participated, along with four Civilian Conservation Corps companies and troops from the 26th Infantry.

The annual summer meeting of the New York Section of the Society of American Foresters, held on September 12, featured discussion of forest policy and legislation and informal talks by Mr. Graves, Chief Forester Silcox, Professor H. H. Chapman, president of the Society, and Franklin Reed, its secretary.

Sporting events included bait and fly casting, trap, skeet, pistol and rifle shooting contests, and a championship baseball game by teams of the Civilian Conservation Corps. A number of conducted mountain hiking trips were made to Mt. McIntyre and to Avalanche Lake and Pass.

# MORE POWER TO THE FIRE FIGHTERS

By F. G. WILSON

**B**ECAUSE the people of America rank high among the nations in carelessness with fire in the forest, their foresters must of necessity excel in forest protection. Much has been learned from European foresters in the management of forests, but their people have given them little opportunity to acquire proficiency in fighting fires. Consequently, they have given small thought to the development of fire fighting equipment. But with Americans necessity has truly been the mother of invention, and they do not lack for proving grounds to test equipment. Foresters have long realized that funds used to meet fire fighting payrolls bring lower returns than any other forest protection expenditures.

High suppression costs indicate that the protection agency met with defeat and was fighting a defensive battle. Wisconsin's experience in the two drought years of 1933 and 1934 proves that increased allotments for administration and equipment will reduce suppression costs sufficiently to bring a saving in total protection costs, with accompanying reductions in area burned and damaged. Forest culture

means hand labor, and for that reason large sums have been allotted for employment in public forests. But forest protection calls for power equipment, highly portable, reliable in emergency and designed to meet field conditions.

The Wisconsin Conservation Department realized some years ago that the engineering phases of forest protection should be handled by engineers rather than by foresters. The development of new equipment calls for a forester who knows what is needed, of course, but an engineer familiar with field operating conditions and manufacturers already producing similar equipment are vitally important. With all three working together real progress will be made. Often field trials of the first unit will indicate needed changes. Of course forest protection agencies must be prepared to place orders to encourage commercial production. To secure units of a type which have less promise for commercial production, a shop with adequate facilities is required.

The value of tractors and plows in stopping fires is well established. The smaller crawler type tractors of twenty draw-bar horse power meet power requirements without excessive weight. While these could be hauled on a one and one-half ton truck there was no room for the plow, and loading and unloading remained a problem. This was solved by building twenty-four tilting platform trailers, with the platform serving as a loading ramp. The plow is coupled to the tractor and by setting the brakes on the tractor there is no need for lashing or clamping the plow for transportation. The truck is thus left free to carry men and tools, and

if the truck becomes stuck in sand or mud the trailer can be unloaded in a minute. If necessary the tractor can also pull the entire outfit out of a bad hole. A few of the trailers are equipped with a hand winch so that disabled equipment can readily be loaded in the field.

The introduction of trailers naturally raised the question of a trailer hitch. A study of commercial hitches resulted in selection of a ball and socket type with a secure locking device. Another advantage of this

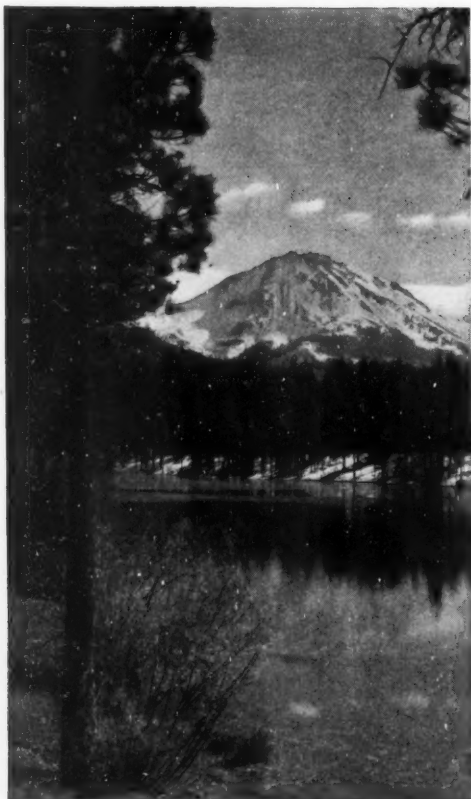
hitch lies in the fact that the less expensive portion is mounted on the truck. With several times as many trucks as trailers, this means quite a sum in equipping 124 trucks so that each can haul any trailer. The twenty-four tractors will also be provided with the ball stud as an auxiliary hitch to haul trailer pumps where a truck cannot go, which is a common occurrence when fighting peat fires.

Wearing of rotors from sand or other abrasive material had given some trouble with rotary pumps and the development in jetting wells, which was worked out by the Michigan Conservation Department, raised further question as to the merit of this type of pump, for the first flow from such wells carries considerable sand. Objecting to the ratio of weight to capacity of piston pumps, further study was given to centrifugal pumps of the enclosed impeller type, which are especially free from wear when pumping water carrying abrasive material. Centrifugals (Continuing on page 610)



—Wisconsin Conservation Department

Two new commercial pumps and a trailer unit built by the forest protection division of the Wisconsin Conservation Department to provide more power for its forest fire fighters.



Mt. Lassen, peaceful, deceptive—underneath a seething cauldron of unrest.

# LASSEN--AMERICA'S ACTIVE VOLCANO

By CRISTEL HASTINGS

named without characteristic and very good reason.

Mt. Lassen became a National Park in 1916, while people were still talking about its last violent performance. This happened in 1915, when it seemingly opened one eye and began with some vigor to make up for lost time.

After decades of evident dormancy, the old mountain suddenly began emitting great spoutings of steam from its snow-covered summit. Ominous rumblings were heard for uncomfortable periods of time, and from a new crater rivers of molten lava overflowed following a thunderous eruption that virtually blew the lid off Lassen. Molten streams of lava made their relentless way down the snow-bound slopes, and a shower of ashes fell over the country.

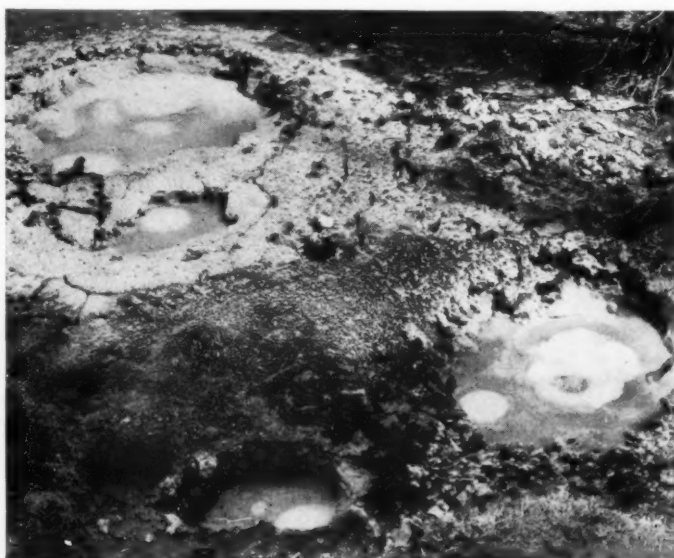
Then followed a period of quiet, and the concern of the populace gradually subsided. But the eyes of America were turned toward the mountain and under the administration of the National Park Service, a splendid highway was constructed to virtually encircle this precocious peak—the last of a long line of primordial coastal beacons that once flared and blazed like torches in a midnight that was the beginning of the world.

Lassen Peak was named to honor Peter Lassen, an old pioneer who brought the first Masonic charter to the State of California, and who organized the first lodge at his ranch, now known as Vina. Peter Lassen sleeps in a little grave in placid Honey Lake Valley on the northeast side of the restless peak that bears his name, and over it the first Masonic monument in California was erected.

**A**LTHOUGH Mt. Lassen lies but a shade more than two hundred miles in a northeasterly direction from San Francisco, Californians themselves know surprisingly little even of the picturesque region surrounding this fiery, rumbling cone from out whose top clouds of steam and rivers of molten lava pour at irregular intervals. Lassen's isolation in former years has been accredited mainly to its inaccessibility, a near view of the smoldering peak and its craters of mud having been reserved only to an intrepid sprinkling of forest rangers, aviators and to the occasional hunter. In other words, the populace, as a rule, considered it a good place to keep away from, and not without reason.

Today, however, Lassen Volcanic National Park is easily accessible to the motorist and offers a scenic treat possible nowhere else in the country, for Lassen enjoys the distinction of being the only live volcano in the continental United States, in perfect working order, with a full guarantee to erupt now and then, raising the roof, so to speak, with all the tempestuous trimmings and fireworks that went with the fiery beacons of Miocene times.

As seen far toward the east from the Pacific Highway, Lassen Peak presents a somnolent, white-clad picture of peace. Even this is vastly deceiving, for underneath the gleaming mantle of snow there are boiling lakes of bubbling lava. There are countless mud pots and scalding geysers awaiting release in jetting fountains of steam. And you may be sure that neither Chaos Crag, with its scars of old eruptions, nor Bumpass Hell, nor the Devil's Kitchen, were



"Countless mud pots and scalding geysers awaiting release in jetting fountains of steam."





## EDITORIAL

### State Forests

**W**HEN President Roosevelt signed the Fulmer bill on August 29, another spoke was driven in the nation's forestry wheel and a plan was set up for acquiring, developing, administering and managing State Forests in coordination with the national program of forest land management.

The Fulmer Act ranks with the five most important steps in American forest legislation—the Act of March 3, 1891, authorizing the President to create the National Forests from the Public Domain; the Act of February 1, 1905, transferring the National Forests from the Department of the Interior to the Department of Agriculture; the Act of March 1, 1911, authorizing Federal purchase of lands for National Forests in the East; the Act of June 7, 1924, providing Federal cooperation in protecting State and privately owned forests from fire and in growing and distributing forest planting stock; and the Act of May 22, 1928, providing a Federal program for forest research.

Under the Act just passed, the facilities and funds of the Federal Government are available for establishing and developing a national system of widely distributed and coordinated State Forests. As returns are derived from the sale of timber or the use of the land the Federal investment is returned, and meanwhile the State's responsibility is recognized without undue Federal domination. The plan is in line with the thought expressed in the President's letter of last January, addressed to all Governors, that "maintenance of our forests and the industries dependent upon them, which in normal times afford employment to large numbers of our people, is very vital to the welfare of every State. It is essential for the permanent recovery of our country." It also conforms with recommendations of the National Resources Board that the States should add sixty million acres to the seventeen million acres now under State ownership and management.

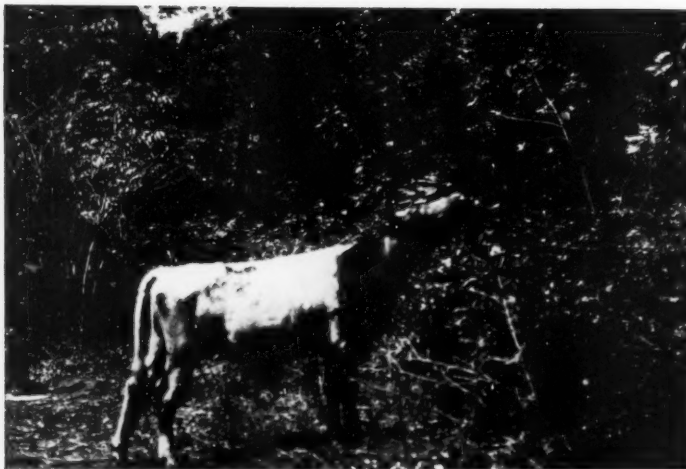
The United States Forest Service has gained a position of leadership in the forestry field because of the vast area of National Forests on which it may demonstrate practical methods of handling forest land for growing timber and for

allied uses. The new Act opens the way for the States to exercise similar leadership in that it provides the instrument by which the States may add lands to State ownership. Its limiting factor is the funds made available for purchases. By establishing many small demonstration forests, the Act will further President Roosevelt's desires as expressed recently at Lake Placid, "to extend the knowledge of conservation to the operators of private lands."

Lands, however, can be acquired only "as Congress may from time to time appropriate," for the Act carries no actual appropriation, but only an authorization for later appropriations totaling \$5,000,000. Representative Hampton P. Fulmer, of South Carolina, his colleague Senator Ellison D. Smith, of the same State, Senator John H. Bankhead, of Alabama, and other members of the two Congressional bodies worked hard to carry this Act through Congress, but the battle is not yet won. The test of any law is in the fiscal program to which the Government is definitely committed. The \$5,000,000 authorization must be made a reality as early as possible, and thereafter other funds must be made available until the States have systems of State Forests comparable with their needs and responsibilities.

Congress had adjourned when the Act was approved by the President. No regular appropriation can be expected until the appropriation for the fiscal year beginning July 1, 1936, but there are some of the emergency funds yet unallotted. Many States are now ready to embark on a program of forest land acquisition and management. With the stage set, and the leaders ready to go, it will be unfortunate if some emergency funds cannot be made immediately available. More lands in State ownership will offer more opportunities for constructive work by C.C.C. men and others out of employment. They will also hasten the time when the States may cooperate with industry in working out sustained yield forest management. Inasmuch as the \$4,800,000 appropriation was provided to relieve unemployment, it would seem an allotment from that source is justified. Certainly the authorities having responsibility for disbursing this fund should give it consideration.





Steers reach up and browse foliage of young trees.

# SHOULD FARMWOODS BE GRAZED?

By DANIEL DENUYL

WITH the revolutionary changes in economic and sociological relationships that have occurred in the last few years, many new ideas regarding the future of agriculture have developed. One of the most important of these is a realization that there must be carefully planned land utilization. Land use programs in the Central States have recognized the importance of forestry in the development of these projects.

The common practice throughout the Central States is to turn domestic livestock into the farmwoods. This practice is recognized by foresters and others interested in the farmwoods as being very detrimental to the woods. The forester is not interested in attempting to maintain a productive timber crop on pasture land, but he is interested in the proper use of the farmwoods, that of timber production for farm and market use. Considering the fact that approximately three-fourths of the farmwoods are grazed, it is quite obvious that definite information is needed on the effects which grazing practices produce. What happens to the livestock when they are turned into the farmwoods should be of concern to the farmer. What happens to the farmwoods when livestock use it for pasture is of concern to the forester. Answers to these questions are found in the results of a three-year study conducted by the Purdue Agricultural Experiment Station and the Central States Forest Experiment Station.

To find out what happens when livestock graze in the farmwoods, it was necessary

to confine the animals to the woods. An oak-hickory farmwoods located in Laporte County, Indiana, was divided into three fenced plots of six, twelve, and eighteen acres each. Into each of these plots three head of yearling steers were allowed to graze. The stock, carefully selected for the experiment, were placed in charge of a herdsman who kept them properly watered and salted. The stock received no supplementary feed while confined to the plots. The animals were weighed at regular intervals in order to determine the effects of woods grazing on animal weights. The results of three seasons of farmwoods grazing are graphically shown in Figure 1.

The effects of farmwoods grazing on the livestock is well illustrated in the weight curves of the animals used during the time of the experiment. The six-acre and twelve-acre plot curves indicate clearly the inability of those areas to support such intensive grazing. The eighteen-acre plot curves for the 1931 and 1932 seasons show weight gains. However, the curve for the 1933 season shows the cumulative effects of the two previous seasons' grazing and illustrates clearly that as the period of grazing increased the forage decreased and the trend is toward lower carrying capacities. It is also quite ob-

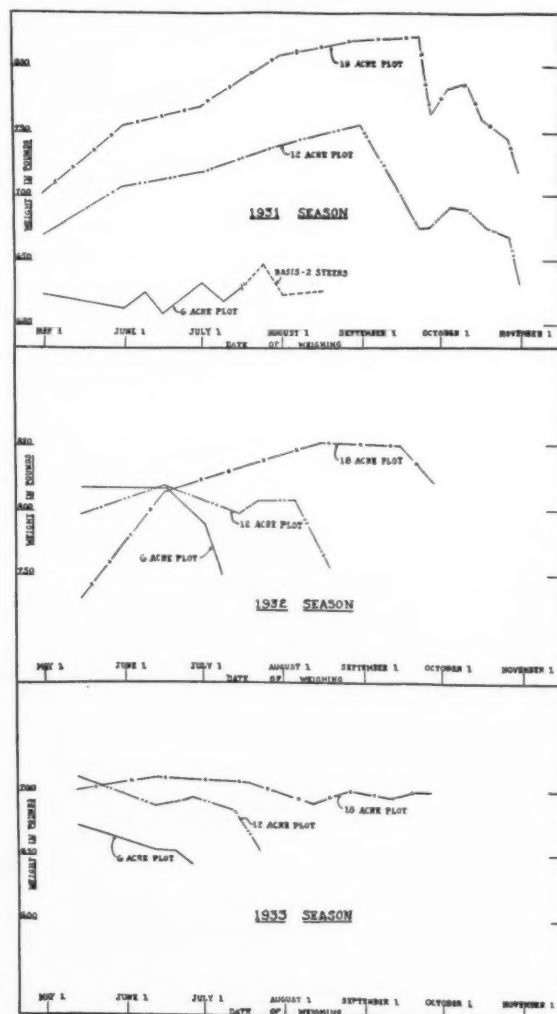


Figure 1. Weight variations of cattle for three intensities of grazing. Note how graphs flatten out and become shorter during the second and third seasons.

Figure 2. Young growth and vegetation in Plot 2, in June, 1931.



vious that the forage productive capacity of the plots was reduced each year. Each season the animals had to be removed earlier, especially those in the six-acre and twelve-acre plots. The ability of the vegetation to produce new growth following periods of favorable rainfall and temperature conditions resulted in increased use of forage by the steers. Observations indicated that each season the amount of vegetation produced was being materially reduced. These conditions were reflected in the weight curves and were evident even though the steers were removed from the plots early in the season.

What happens to the farmwoods when livestock use it for pasture? The effects of grazing in the farmwoods are far-reaching. Considerable variation was observed in the degree and character of injury to the farmwoods, under the three intensities of grazing. The most noticeable effect produced was the opening up of the stand by complete elimination of all vegetation. This was especially noticeable in the six-acre plot and less so in the eighteen-acre plot. In all the plots the animals browsed tree species before the grass and other herbaceous vegetation had been completely utilized. The browsing, trampling, pulling seedlings out of the soil, together with the riding down and frequent uprooting of saplings up to three inches in diameter and fourteen feet in height, resulted in the rapid disintegration of leaf litter, drying out of soil and the elimination of tree reproduction from the plots. The cumulative effects resulted in complete destruction of all tree reproduction over large portions of all the plots.

The grazing habits of the steers were closely observed. At the beginning of the season the steers utilized the grasses and browsed other vegetation, including tree reproduction. As the season advanced, all vegetation was closely cropped, with the exception of the eighteen-acre plot, in which the blackberries were not fully utilized. Close utilization of grasses and herbaceous vegetation was followed by

the riding-down of hickory, oak and black cherry saplings. It was interesting to note that one aggressive steer in the twelve-acre plot would ride-down the saplings to the point where the foliage could be reached by all three animals. The seasonal record shows that this steer maintained his weight for a longer period than the other two and was the heaviest steer at the time the animals were removed from the plot.

Observations indicated that after the best forage is utilized, palatability apparently is of less importance than grazing habits. During the 1933 season the steers in the eighteen-acre plot browsed less on blackberries. On the other hand, these same steers heavily browsed the leathery and extremely bitter leaves of wind-thrown black oak trees. In the six-acre plot the utilization of pokeweed during the grazing season of 1933 was very noticeable. During the entire period of experimental study other instances of such close utilization of this weed were not noted.

The close utilization of undergrowth and ground cover results in changes in composition and percentage of area occupied by the various types of vegetative growth. Observations and records show clearly that weed growth increased generally over all the plots. In place of such vegetation as jack-in-the-pulpit, touch-me-not, (Continuing on page 610)



Figure 3. After two years of grazing in Plot 2, in June, 1933. Note the absence of vegetation.



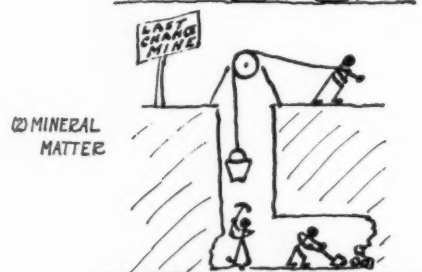


# FIELD AND FOREST FOR BOYS AND GIRLS

## HOW WOOD IS MADE

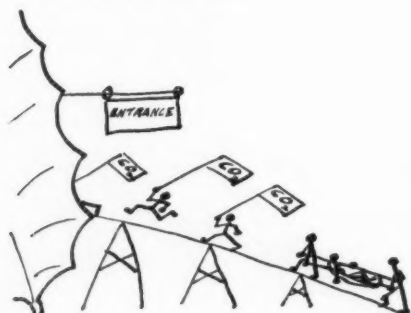
By SHIRLEY ALLEN

### THE RAW MATERIALS ARE--



a molecule of carbon dioxide is one atom of carbon and two atoms of oxygen locked up together.

THE CARBON DIOXIDE MOLECULES ENTER THE LEAF.—



WHEN you carry in an armful of wood for the woodstove or tug away at a big chunk for the fireplace, don't you sometimes wonder what it is that makes wood weigh so much? And wouldn't you be surprised to know that much of the solid part of wood comes from the air?

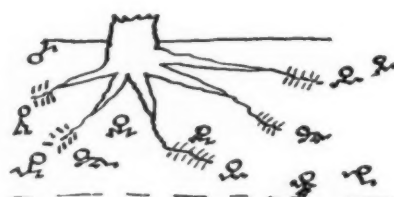
Well, that's exactly what happens. Water, mineral materials from the soil, and carbon from the air, after some wonderful adventures within the tree, make up the "solid" part of the wood. And what is even stranger, the carbon comes into the tree in the form of gas—a thing we think of as light and airy. This gas which we know as carbon dioxide is the source of the largest part of a piece of wood and this part is sometimes recovered for use in the form of charcoal which is almost pure carbon.

If you take a stick of wood and saw or split it into two equally sized pieces and then carefully burn one piece down to the gray ashes, you can get an idea of how little solid material comes from the soil. For the ash is most of the earthy material left after all car-

RAIN WATER FILTERS THROUGH THE SOIL AND UNITES WITH MINERAL SALTS —



THE WATER, WITH MINERAL SALTS IN SOLUTION, ENTERS THE TREE THROUGH TINY HAIRS ON THE ROOTS —



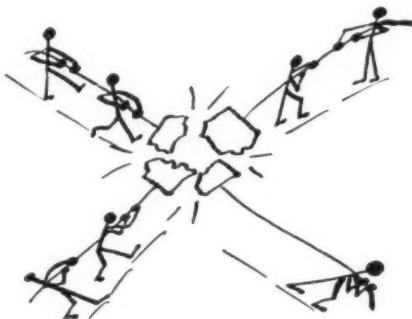
— AND TRAVELS INSIDE THE TRUNK OF THE TREE UP TO THE LEAVES —



INSIDE THE LEAVES ARE SMALL GREEN BODIES CALLED CHLOROPLASTS (which by the way, give the green color to the leaves). IN THE PRESENCE OF SUNLIGHT —



—THESE CHLOROPLASTS ARE ABLE TO START A CHEMICAL REACTION WHICH TEARS APART —



—THE MOLECULES OF CARBON DIOXIDE, WATER AND MINERAL SALTS. (A process as yet not fully understood, but which is very wonderful since a temperature of 3600 degrees is necessary to "tear apart" a molecule of carbon dioxide in the laboratory)

THE ATOMS OF CARBON, HYDROGEN, OXYGEN ETC. ARE RECOMBINED TO FORM VARIOUS PLANT "FOODS"—



PERHAPS THE MOST IMPORTANT OF THESE FOODS IS STARCH —

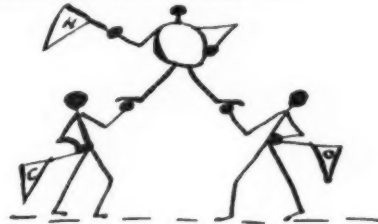


bon is burned up. Certainly it is small compared to your unburned half of the stick. But be careful, don't make a mistake by thinking that it isn't important.

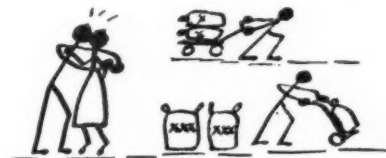
Now what about water? Of course it comes into the tree from the soil, helps the tree to "manufacture" the wood, and some of it stays in the wood even after the tree is cut down and seems completely dry.

The sketches with their labels tell you the story of how wood is made in a tree. You would have a hard time finding these little "stick men" for if they are there they've never been seen. What an army of them would be necessary to "manufacture" even a clothespin, to say nothing of a bridge timber! And yet "manufacture" is going on all around us and a patch of woods or forest is healthy and profitable for the wood it can furnish us, just so long as it is busy each season collecting and working over carbon, water, and earthy materials.

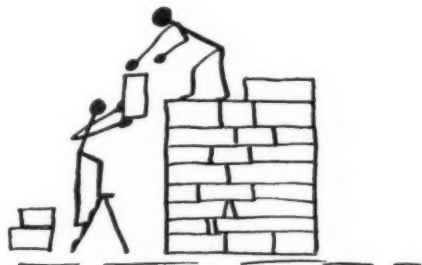
—WHICH IS COMPOSED OF CARBON, HYDROGEN AND OXYGEN —



THE STARCH IS TURNED INTO SUGAR, ALSO COMPOSED OF CARBON, HYDROGEN AND OXYGEN, AND THIS IS TRANSPORTED, DISSOLVED IN WATER, TO ALL PARTS OF THE PLANT —

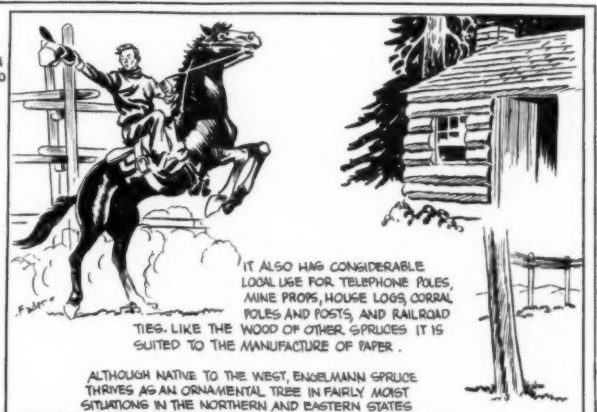
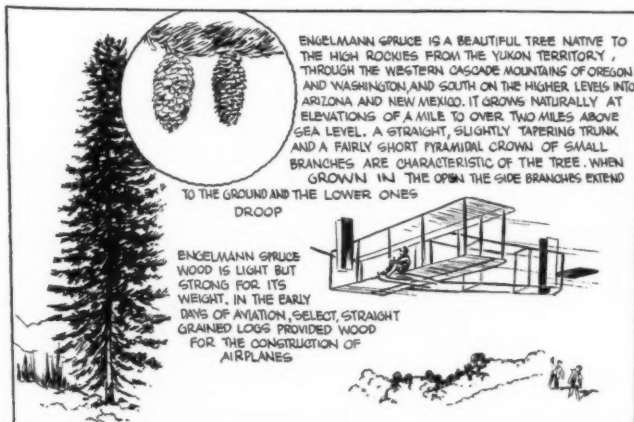


THE SUGAR IS CONVERTED INTO CELLULOSE, LIKEWISE COMPOSED OF CARBON, HYDROGEN, AND OXYGEN. CELLULOSE IS THE CHIEF BUILDING MATERIAL OF THE PLANT.



## TREES AND THEIR USES

### No. 9 --- ENGELMANN SPRUCE



# ENGELMANN SPRUCE

*Picea engelmannii*. Engelmann



THE narrow pyramidal deep blue-green crown of Engelmann spruce is a feature of the high Rocky Mountains from the Yukon territory to Arizona. In the western Cascade Mountains of Oregon and Washington it grows at elevations of around 6,000 feet, and at steadily increasing elevations as the range extends into Arizona and New Mexico, where it is found from 8,500 to 12,000 feet above sea level. As a rule it finds sufficient soil moisture only at higher elevations, so its lower range is limited to moist canyons and north slopes. In dense stands Engelmann spruce has a straight, slightly tapering trunk and a fairly short, narrow pyramidal crown of small branches. The lower branches droop and when grown in the open extend to the ground. Numerous tassel-like side branchlets hanging from the main horizontal branches give a compact appearance to the crown. Trees attain heights of eighty to 110 feet, with diameters at breast height from eighteen inches to thirty-six inches, and clear trunk lengths of twenty-five feet. Such trees may be 500 to 600 years old. At high altitudes exposed to wind and low temperatures, trees two to four feet high with slender, spike-like stems may live for a hundred years or more.

The deep blue-green leaves or needles are an inch or more in length, four-angled, more or less directed forward, rather soft and flexible to the touch with a relatively short, flat point. On young trees and on those which do not bear cones, the needles are spreading and evenly scattered, while on the cone-bearing twigs they are commonly crowded and usually shorter. Ordinarily deep blue-green, some trees are decidedly silvery. This is particularly true of the younger trees. The young shoots, which are covered with fine hairs for the first three years, and the leaves give off a disagreeable odor when crushed. These features, together with the smaller cones, help distinguish it from the Colorado spruce, *Picea pungens*.

The dark, purplish brown or russet-red bark is one-quarter to one-half an inch thick, and broken into thin, loosely attached, small scales. Even young trees have the characteristic scaly bark.

In the spring each tree carries dark purple male flowers, and bright scarlet female flowers, like little catkins, near the top of the tree. The latter develop by the following August into cylindrical light brown cones, an inch to three inches long. The small, dark brown winged seeds are soon shed and by early winter the empty cones drop from the trees. Large crops of seed are borne at intervals of three or four years from the time the tree is about twenty-five years to an advanced age. While the crops are heavy and seeds which lie protected in the forest duff continue to be fertile for four or five years after they have been shed, natural reproduction is usually sparse.

The deep blue-green spires of the Engelmann spruce dominate the landscape of the higher western Rockies from the Yukon Territory to Arizona.



The light yellowish or faintly reddish-brown wood is fine-grained and lighter in weight than white pine. A single cubic foot when air dry weighs about twenty-three pounds. It is strong for its weight, and carefully selected spruce lumber was used in the early airplanes. It is used locally for telephone and telegraph lines, and also for doors, window sash and interior trim.

*Picea* is the Latin name for spruce and is derived from *pix*, meaning pitch, while *engelmannii* refers to George Engelmann, a distinguished botanist of St. Louis, Missouri, whose identifying description of this spruce first appeared in 1863.

It is the most important of the Rocky Mountain spruces, and undoubtedly comprised a large part of the 127,762,000 board feet of spruce lumber cut in those states during 1933. Similarly, no figures of the estimated stand of Engelmann spruce are available, but of the 61,582,000,000 board feet of western spruce, now believed to exist, a large part consists of this species.

While Engelmann spruce grows at the upper limits of tree growth, varying from 6,000 feet above sea level in the north to 12,000 feet in the south, with variations according to local climatic conditions, the merchantable sizes are found at the middle and lower levels. Even these are relatively high elevations, however, and the resulting inaccessibility is the chief reason for its minor commercial importance.

Within its range it is frequently the dominating species and is commonly associated with Alpine fir, white fir, lodgepole pine, limber pine and Douglas fir. In the north it may also be found with western white pine and in the south with corkbark fir. Because it surpasses most of its associates in its tolerance of shade, the forest invariably contains Engelmann spruce of all ages and sizes, varying from seedlings and saplings to trees of saw-log size. These are more tolerant in youth than in old age, but the small suppressed growth shows remarkable ability to respond after it has been released by the removal of larger trees. Even after years of shading, trees will make good growth after the source of suppression is removed.

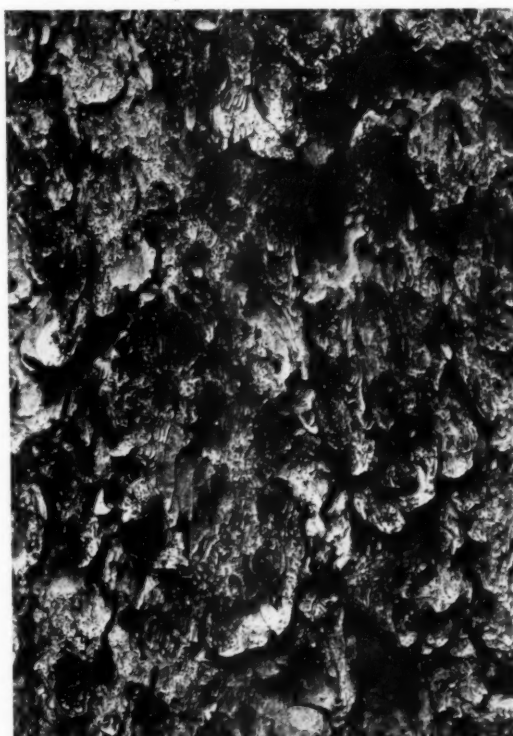
Fortunately the season of great fire hazard at high elevations is relatively short, but once started, fire is almost impossible to control when it gets into the heavy crowns of this spruce. Fire, as well as extensive timber cutting, may be followed by considerable windfall because of the shallow root system.

Engelmann spruce has few insect or fungus enemies, but is susceptible to the spruce budworm. Control under the mountainous forest conditions would be difficult, but thus far the attacks have never been extensive.

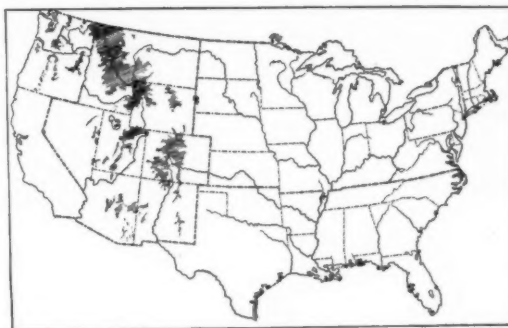
Although native to the high western mountains, it can adapt itself to eastern conditions and has been successful as an ornamental tree on northern exposures in relatively moist clay loam soils, but cannot stand the hot dry winds of open prairies. The singular beauty of color and form makes it increasingly favored for landscape purposes. Probably first cultivated in the Arnold Arboretum, it has been introduced successfully into England and parts of Germany. The lower branches are maintained for forty or fifty years, and while the tree loses symmetry with age, it is always beautiful.



The soft, flexible, four-angled needles are an inch or more long and usually curved forward, while the light brown cones are one to three inches long.



Many small, thin, loosely attached scales are laid one over the other to form the thin, russet-red bark.



Natural range of Engelmann spruce in the United States.

# AROUND THE STATES

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### President Vetoes Amendments to Taylor Grazing Act

The amendments to the Taylor Grazing Act of 1934, as included in H. R. 3019, were vetoed by President Roosevelt on September 5. In vetoing the bill, the President stated that, while some of its administrative provisions had been recommended by the Department of the Interior, "radical alterations in the principles of the proposed law" were made before it was passed by Congress. The President's action was in accordance with recommendations by Secretary Ickes, who reported to the President that the bill would nullify the original grazing act, result in capture of most of the Public Domain by the states, operate for the benefit of the large holder, and make impossible the carrying out of conservation plans.

The vetoed bill would have increased the area on which grazing districts may be established from 80,000,000 acres to 142,000,000 acres, but in view of the undesirable additions made in the Senate, Secretary Ickes said:

"I am unwilling to sanction the despoilment of the remaining Public Domain in the name of conservation or set the stage for the abandonment of homesteads by small owners under pressure from livestock interests, which would follow the signing of this act."

The Secretary went on to point out that the bill would provide for the exchange of state-owned lands for Federal domain whether within or outside of grazing districts "merely on the application of a state. . . ."

"The states exclusively, and not the Federal Government, would be the moving parties in these exchanges," Mr. Ickes said. "Nor is any discretion given to the Secretary of the Interior to protect the interests of the grazing districts."

"The Federal Government would have no option except to dispossess itself of its own land at the behest of the coveting state. Through the operation of this provision the Federal Government could be required to relinquish the most advantageously situated public lands in exchange for the least desirable tracts, most of which in turn would probably pass to the states at the end of two years as isolated tracts."

"The exchange of lands can only be justified in order to consolidate holdings for the better and widest possible use of the range, and the Federal Government should have not only the right but the responsibility of determining that exchanges and consolidations involving the national estate shall serve the fundamental purposes of the Grazing Law and conform to a well-considered land-use program."

Secretary Ickes showed that under the terms of the bill the "isolated or disconnected tracts" of Federal domain would revert to state ownership after two years. . . .

"The amendatory act also provides that occupants of lands contiguous to isolated or disconnected tracts shall be entitled to lease them. The language is mandatory. Consider the effect in an area such as that in which odd-numbered sections have been granted to a railroad and even-numbered sections remain largely in public ownership. These public lands are all in the category of 'isolated and disconnected tracts,' while the contiguous sections are railroad lands."

"It is common knowledge that vast areas of these railroad lands have been sold or leased to large and powerful stock-raising interests. Under the terms of the act under consideration the occupant of the railroad lands and no one else would be entitled to lease the intervening even-numbered sections. Thus this provision patently would operate for the benefit of the large holder."

"The small stockman who has taken a stock-raising homestead on an even-numbered section in such a region would find himself in a



Philip W. Ayres

sad plight for the reason that no homestead is contiguous to checker-board public lands. He would be deprived of all right or opportunity to acquire by lease or otherwise any other even-numbered section in the region."

"It is the wise intent of the Grazing Act of 1934 that, commensurate with proper use, the small owner shall be given at least an equal opportunity with his more powerful neighbor to enjoy the benefits of regulated grazing on public lands."

In similar vein, Henry S. Graves, president of The American Forestry Association, wrote President Roosevelt, on August 27, urging him to veto the measure. Not only did Mr. Graves question the advisability of the enforced land exchanges which would ultimately place all of the desirable lands under jurisdiction of the states, or give them over to large livestock interests, but he also criticized the section which would take all appointments in the Grazing Administration out of Civil Service and confine appointments to citizens and residents of the state in which the employee will reside. "Such action," declared Mr. Graves, "will demoralize the merit system of appointments, throw the administration of the Public Domain into the field of political spoils, and seriously jeopardize the administration of the act."

### President Announces New Program for Civilian Conservation Corps

President Roosevelt, on September 25, announced that he had instructed Robert Fechner, director of Emergency Conservation Work, to proceed immediately with plans to make the Civilian Conservation Corps a permanent part of the government. As a first step, the President stated, new enrollments will be curtailed with a view to reducing the strength of the Corps to 300,000 by next June—the strength the President has advocated for a permanent organization. The present strength of the Corps is approximately 485,000.

If the present rate at which enrolled members are leaving the camps—estimated to be around 30,000 a month—is maintained, the strength of the Corps will be reduced to less than 400,000 by January 1, and to 220,000 by July 1. In this event, it was indicated, it will be necessary to enroll around 80,000 replacements to complete the work program already started.

The President expressed gratification at the number of young men leaving the Corps to assume employment in private industry. He declared that during the first six months of the C.C.C. nineteen per cent of the enrolled men found employment and in the second six-month period thirty-six per cent found jobs, twenty-three per cent in the next six months, and nearly forty per cent in the last six months.

The present work program of the Civilian Conservation Corps, slightly modified, will be continued for the present, it was stated. By mid-summer of 1936 a new program, based on a permanent Corps of 300,000 men, will be put into effect.

### Philip W. Ayres Retires as Forester for New Hampshire Society

After thirty-four years of active service, Philip W. Ayres has announced his retirement as forester for the Society for Protection of New Hampshire Forests. Lawrence W. Rathbun, of Dublin, New Hampshire, will succeed Mr. Ayres, who will continue with the Society in the capacity of consulting forester.

Mr. Ayres' association with the Society dates back practically to its inception in 1901, and under his active leadership many outstanding contributions to forestry and conservation have been made. Among these are the saving of Franconia Notch, including the Old Man of the Mountain and the Flume, and beautiful Crawford Notch; establishment of Lost River Reservation in Kinsman Notch, and the acquisition for public ownership of extensive areas on Mount Monadnock, Mount Sunapee and Mount Kearsarge. Mr. Ayres and the Society also had a leading part in the organization of a State Forestry Department for New Hampshire, the appointment of a state forester, and the enactment of forest protection laws. He was one of the active leaders in the fight for the establishment of the White Mountain National Forest.

Mr. Rathbun has been a consulting forester at Dublin since 1928. He is a graduate of the Yale Forest School.

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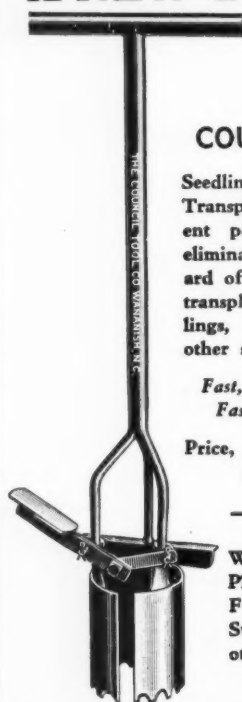
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## THREE

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See Pages 604-608-612

## Conservation Calendar in Congress

The first session of the Seventy-fourth Congress adjourned on August 26. The second session of the same Congress will convene on January 3, 1936, when all bills not approved or otherwise disposed of may be resumed according to their present status. Bills vetoed after Congress adjourned may be given further consideration in the next session. A list of the more important bills approved follows:

### BILLS APPROVED

- H. R. 6644 — BUCHANAN — Deficiency appropriations for year ending June 30, 1935. Approved March 21. Public Law No. 21.
- H. R. 5255 — OLIVER — Appropriations for the Department of Commerce. Approved March 22. Public Law No. 22.
- H. R. 2881 — BUCK — For the adjustment of contracts for the sale of timber on the National Forests. Approved April 17. Public Law No. 38.
- H. J. Res. 117 — BUCHANAN — Appropriations for relief purposes. Approved April 8. Public Res. No. 11.
- H. R. 7054 — DEMPSEY — Providing for the "Soil Conservation Service" in the Department of Agriculture to protect land resources against soil erosion. Approved April 27. Public Law No. 46.
- H. R. 6223 — TAYLOR of Colorado — Appropriations for Interior Department. Approved May 9. Public Law No. 53.
- H. R. 6718 — SANDLIN — Agricultural appropriations bill. Approved May 17. Public Law No. 62.
- S. 82 — GEORGE — For the disposal of surplus personal property of the Emergency Conservation Work. Approved May 29. Public Law No. 82.
- H. R. 7982 — KLEBERG (S. 3006) — Amending the Migratory Bird Hunting Stamp Act of March 16, 1934, and certain other acts relating to game and other wildlife administered by the Department of Agriculture. Approved June 15. Public Law No. 148.

- S. 2131 — CONNALLY and SHEPPARD (H. R. 6373 — THOMASON) — Establishing the Big Bend National Park. Approved June 20. Public Law No. 157.
- H. R. 7160 — JONES — Act to provide for research into basic laws and principles relating to agriculture and to provide for the further development of cooperative agricultural extension work and the complete endowment and support of land grant colleges. Approved June 29. Public Law No. 182.
- S. 2074 — BYRD (H. R. 6734 — MAVERICK) — To create a National Park Trust Fund Board. Approved July 10. Private Law No. 201.
- S. 2073 — BYRD (H. R. 6670 — MAVERICK) — To provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance, and for other purposes. Approved August 21. Public Law No. 292.
- H. R. 6914 — FULMER (S. 2739 — COPELAND) — To authorize cooperation with the several states for the purpose of stimulating the acquisition, development and proper administration and management of State Forests and coordinating Federal and State activities in carrying out a national program of forest-land management. Approved August 29. Public Law No. 395.

### BILL VETOED

- H. R. 3019 — DE ROUEN — To amend sections 1, 3 and 15 of "An act to stop injury to the public grazing lands by preventing over-grazing and soil deterioration, to provide for their orderly use, improvement, and development, to stabilize the livestock industry dependent upon the public range, and for other purposes."

### BILLS CARRIED OVER

- S. 2665 — LEWIS (H. R. 7712 — COCHRAN) — To change the name of the Department of the Interior and to coordinate certain governmental functions. Reported by Senate Committee on Public Lands and Surveys July 24. Report No. 1150. Referred to subcommittee House Committee on Expenditures in Executive Departments. Subcommittee of House voted not to report August 13.
- S. 3288 — MCKELLAR — Consolidating certain forestry branches and other divisions and services in a separate bureau of the Department of Agriculture to be known as the "Bureau of Forestry." Referred to the Committee on Agriculture and Forestry July 19.
- S. 3417 — FLETCHER (H. R. 9197 — CALDWELL) — To provide for extending credit to aid in the conservation and operation of forest lands, to establish a Forest Credit Bank, and for other purposes. Referred to Senate Committee on Banking and Currency August 14; to House Committee on Agriculture August 21.

## WHEN LEAVES TURN COLOR —it's time to plant trees!

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White Flowering Dogwood ( <i>Cornus florida</i> ) 1 to 1½ feet		6.00	35.00
Sweet Gum ( <i>Liquidambar styraciflua</i> ) 1 to 1½ feet		4.00	30.00
Sour Gum ( <i>Nyssa sylvatica</i> ) 12 to 18 inches		5.00	30.00
Sourwood ( <i>Oxydendron arboreum</i> ) 1 to 1½ feet		4.00	25.00
White Fringe Tree ( <i>Chionanthus</i> ) 8 to 15 inches		12.00	85.00

FOR SMALL PLANTINGS		(each)
Mountain Stewartia ( <i>Stewartia</i> ) 1½ to 2 feet specimen		\$2.00
Sweet Magnolia ( <i>Magnolia glauca</i> ) 1½ to 2 feet specimen		1.00
Flowering Dogwood		1.00
White, 3 to 4 feet specimen		1.30
Red, 2 to 3 feet specimen B&B		1.30
Red Bud ( <i>Cercis Canadensis</i> ) 4 to 5 feet specimen		1.25
Franklinia Tree ( <i>Gordonia</i> ) 12 to 15 inches B&B		1.50
3 to 4 feet specimen		4.00
American Tree Azalea ( <i>arborescens</i> ) 1 to 1½ feet B&B		2.00
White Fringe ( <i>Chionanthus</i> ) 3 to 4 feet specimen		1.00

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## 600,000,000 TREES FOR EROSION CONTROL

Approximately 600,000,000 trees and shrubs will be produced by nurseries of the Soil Conservation Service and cooperating agencies for use on erosion control demonstration projects throughout the country the coming year, Charles R. Enlow, Chief of the Division of Nurseries of the Service, has announced.

To meet this heavy production assignment, nineteen new nurseries will be established, bringing the total number of Service nurseries to eighty-three, in thirty-eight states. They now range in size from two acres to 800 acres, with the average about fifty acres.

Fifteen of these nurseries are under supervision of Emergency Conservation Work and were established primarily to provide materials for use by the 545 Civilian Conservation Corps camps under direction of the Service. Certain other nursery areas providing trees for the Service are operated in cooperation with state foresters.

The mounting demand for trees, shrubs and grasses has been occasioned by the recent expansion in the demonstration program of the Service, which increased the number of dem-

onstrations projects from forty-seven in thirty-one states to 141 in forty-one states, and the number of C.C.C. camps from fifty-five to 545.

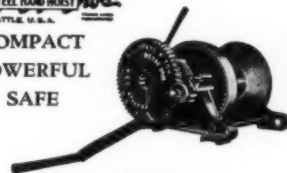
A large share of the 600,000,000 trees and shrubs will be used in the reforestation and afforestation phases of erosion control work on farm and grazing lands. Under the soil conservation program, areas too steep or otherwise unsuited for practical cultivation are taken out of crop production and planted in trees and shrubs to prevent erosion by wind and water. In many instances, shrubs and vines are used in the control of gullies. When planted on gully banks, they anchor the soil and prevent it from washing away. When used on lands subject to wind erosion, trees and shrubs serve a double purpose by anchoring the soil and by breaking the sweep of wind. They also slow up runoff of rain water.

A million pounds of grass seed will be used to plant cover on certain lands retired from cultivation under the erosion control program. Like trees, grass anchors the soil and prevents it from being washed away by rain or blown away by wind.

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Darley engineers will give you any combination of equipment you desire. Fire fighting trucks built to carry as much as 500 gallons of water in booster storage tank. Designed and built to your specifications on any chassis you select, such as Ford V-8, Chevrolet, Dodge, International, Diamond T, etc. Equipped with the famous Champion Direct Front Drive Centrifugal Fire Pump which has passed all Underwriters tests and is available in three models—300 GPM capacity, 400 GPM capacity and 500 GPM capacity. Or with Champion Midship Booster Pumps, either 75 GPM or 200 GPM capacity.

Champion Direct Front Drive Centrifugal Pumps sold separately for mounting on any chassis or Fire Apparatus at these low prices.

Price includes Front Mounting Brackets, 300 lb. Pressure Gauge, Automatic Safety Primer, Shut-Off Valve, Brass Caps, with plugged inlet and outlet for booster tank connections, auxiliary motor cooling.

No. F—300-Gallon Capacity. **\$269** Net price, complete with all the above equipment, f.o.b. Chicago.

No. F—400-Gallon Capacity. **\$315** Net price, complete with all the above equipment, f.o.b. Chicago. (Siamese Connections, Booster Line Valves are extra, but cost little.)

No. F—500-750-Gallon Capacity. **\$425** Net price, complete with all the above equipment AND Siamese Outlets, Booster Valves, etc.

**NOTE:** With perfect ease any of the above pumps will exceed ratings by 50 to 92 GPM. And from hydrants will throw 100 to 250 GPM more than rating.

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Capacity 100 Gallons per Minute  
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Just one 2½ gallon hand extinguisher, with which we are all familiar, looks impressive. But think this mighty portable apparatus equals 30 such extinguishers EVERY MINUTE. In other words, 30 men each with a hand extinguisher would lay 75 gallons on a blaze and then, exhausted, would have to quit. But this powerful Fire Fighter can deliver 75 gallons a minute right along—750 gallons every ten minutes.

For Forest Fire work the apparatus can be trailed by any car or lifted into trucks and carried to the front. On such fires it will pump DAY and NIGHT, through long lines of hose, without stopping and with little effort.

No. D440. Portable Fire Engine. Complete with Rotary 75 GPM Pump, as illustrated above, f. o. b. Chicago. **\$395.00**

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Net weight of apparatus on wheels 592 lbs. Shipping weight crated approximately 650 lbs.



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While terrifically powerful in action, yet so exceptionally light weight a Ford or Chevrolet trails it at 35 to 40 miles per hour.

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**RECOGNIZING** that a great many people are interested in the conservation of natural resources, but have not time to keep abreast of the numerous important articles in current periodicals, The American Forestry Association now publishes CONSERVATION, a readers' digest of current articles reporting on the entire field of conservation.

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**Forestry Questions Submitted to The American Forestry Association, 1713 K St., N. W., Washington, D. C., will be Answered in this Column. . . . A Self-Addressed Stamped Envelope Accompanying Your Letter will Assure a Reply.**

✦ ✦ ✦

**QUESTION:** On my property is a Norway maple twenty inches in diameter, measured five feet from the ground. Are there larger Norway maples growing in the United States?—**J. D., Massachusetts.**

**ANSWER:** The Forester knows of no larger Norway maple, although European records show that it attains a circumference of fifteen feet and heights of from ninety to one hundred feet. Records of large Norway maples growing in the United States will be appreciated.

**QUESTION:** Can pecan trees be successfully grown in the Pacific Northwest?—**T. E. A. S., Washington.**

**ANSWER:** The pecan has been tested by amateur planters in the Pacific Northwest for many years and has not generally proved satisfactory. C. A. Reed, associate pomologist, United States Department of Agriculture, reports that climatic conditions of that section are not favorable to production of pecan nuts, although in many cases the trees grow splendidly and have occasionally produced light to moderate crops of middle-grade nuts.

**QUESTION:** Of which species is Koster's blue spruce a variety; also, of which species of juniper is Koster's blue juniper a variety.—**W. W. S., Maryland.**

**ANSWER:** According to L. H. Bailey's *The Cultivated Evergreens of North America*, Koster blue spruce as ordinarily recognized is a variety of the Colorado spruce, *Picea pungens*, variety *argentea*, with credit to Beissner. The bluish-white variety, with pendulous or weeping branches, which originated in the Koster Nurseries, Boskoop, Holland, is the true Koster blue spruce. This is *Picea pungens*, variety *Kosteriana Masters*.

Koster blue juniper, described as "low spreading with glaucous leaves," is a variety of common red cedar, *Juniperus virginiana*, variety *Kosteri*, with credit to Beissner.

**QUESTION:** Some of the elm trees in this vicinity seem to be dying. Can you tell me how to find out whether they are infected by the Dutch elm disease?—**E. R. S., Texas.**

**ANSWER:** Select several specimens about the size of a lead pencil from the infected portion of the tree and ship them, with identifying tags, to the Dutch Elm Disease Laboratory, Morristown, New Jersey, for examination.

**QUESTION:** When and where was the first trip of the Trail Riders of the National Forests made?—**B. B. B., Washington.**

**ANSWER:** 1933, into the Flathead National Forest, Montana.





### Tree Sprayer

A new Tree Sprayer designed to produce better spraying at lower cost has been developed at Lansing, Michigan. It consists of a steel tank which is practically square and, therefore, has a much larger capacity for its size. The bottom slopes each way to the center so it can be completely drained every time the tank is emptied. Holes are drilled in the tank flanges, making it possible to bolt on any kind of a platform or tower. The maximum speed of the Hercules engine is controlled by a governor. When not actually spraying, the engine can be quickly slowed to idling speed, thus saving fuel and unnecessary wear. Forest and Park Officials will find it a simple matter to mount this equipment on already available trucks.

### Road Maintenance Tool

A road tool which is rapidly gaining in popularity is the Gledhill road shaper, made at Galion, Ohio. This tool is a medium weight, low cost machine which is a balanced load for a one and a half ton truck at speeds up to thirty-five miles an hour.

This shaper has two blades set at opposite angles to eliminate side drift. The straight edges on each side keep the blades true and even so that roads are shaped to a true level, bumps planed off and ruts and hollows filled, leaving a firm, even surface.

The four-wheeled chassis is mounted with pneumatic tires. The machine is especially effective for use on forest highways of gravel.

### New Pump

The new Darley Front Mounted Champion 500 Pump manufactured by W. S. Darley & Company was recently tested by the National Board of Fire Underwriters. The Champion Centrifugal 500 passed the twelve hour performance tests with ease.

On direct drive from the motor crankshaft through a multiple disc friction clutch, without being geared up, the Champion 500 delivered 507 GPM at 124 pounds net pump pressure, at an engine speed of only 2,400 RPM. This capacity and pressure was maintained steadily for the six hour period.

For the next three hours the Champion delivered 251 GPM at 202 pounds net pump pressure at an engine speed of only 3,025 RPM. Then, showing reserve stamina, the Centrifugal 500 went through the final three hour period of the test. On the high pressure test with a delivery of 169 GPM the Champion maintained a net pump pressure of 252 pounds at engine speed of only 3,373 RPM.

Tests were made with the Champion on a 1935 Standard Ford V-8 truck chassis. The National Board of engineers reported: "Performance satisfactory" and "Pump in perfect condition at end of test."

This company which promotes a long line of fire equipment has recently announced the Champion Trailer. Equipped with practically everything a big city truck carries, it should prove an innovation in rural and forest fire fighting. There are two powerful floodlights for night fires which swivel and pivot up and down or sideways in any direction. These floodlights and the electric siren are operated by a six volt storage battery carried on the chassis. Everyone interested in fire protection, fire control and forest fire fighting will be interested in following the progress of the new Darley Trailer.

### Rain and Snow Gage

A new model of the Fergusson Weighing and Recording Rain and Snow Gage has been announced by Julien P. Friez & Sons, Inc. This gage records rain, snow, hail and sleet with equal facility and in the same manner. Precipitation is delivered through a collector ring of known area to a receiver resting upon a spring balance. This weighing mechanism is extremely sensitive, for one-hundredth of an inch of rainfall is sufficient to depress the balance and register on the record chart.

The record cylinder is revolved daily, or weekly, by a jeweled clock movement, so that rainfall is shown as ordinates, time as abscissae. The unique linkage from the weighing mechanism to the pen arm allows an extremely open scale on a relatively narrow chart by reversing pen movement at several even increments of the gage capacity. Capacities up to twelve inches of rainfall are offered with provisions for catchment of overflow ten inches in excess of this amount.

This model has a distinct application where heavy rainfall in short periods is experienced and where an accurate record with a minimum of attention is of special value. Other types of different capacities and applications are available.

### Fire Lane Unit

A new unit for high speed fire lane maintenance has been developed by the Four Wheel Drive Auto Company, in collaboration with the Michigan State Forestry Department.

To be effective, fire lanes must be kept free of all vegetation. The new machine, designed for this purpose, consists of a two to three ton four-wheel-drive truck equipped with an underbody discing attachment. As the unit is driven on the fire lane, the discs plow up the vegetation growing there and bury it four to six inches deep, completely covering it with dirt. Periodical discing of the fire lane in this manner assures a very effective firebreak. The unit will condition an eight foot strip of fire lane at a single trip at a speed of from four to ten miles an hour depending upon operating conditions.



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## FULMER ACT TO AID STATE FORESTS

The Fulmer Act, signed by the President on August 29, is one of the most important bills passed by the Seventy-fourth Congress. It provides machinery for the establishment and development of a national system of state forests. The Act, in full, follows:

*An Act:* To authorize cooperation with the several States for the purpose of stimulating the acquisition, development, and proper administration and management of State forests and coordinating Federal and State activities in carrying out a national program of forest-land management, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That for the purpose of stimulating the acquisition, development, and proper administration and management of State forests and of insuring coordinated effort by Federal and State agencies in carrying out a comprehensive national program of forest-land management, the Secretary of Agriculture is hereby authorized to enter into cooperative agreements with appropriate officials of any State or States for acquiring in the name of the United States, by purchase or otherwise, such forest lands within the cooperating State as in his judgment the State is adequately prepared to administer, develop, and manage as State forests in accordance with the provisions of this Act and with such other terms not inconsistent therewith as he shall prescribe, such acquisition to include the mapping, examination, appraisal, and surveying of such lands and the doing of all things necessary to perfect title thereto in the United States: *Provided,* That, since it is the declared policy of Congress to maintain and, where it is in the national interest, to extend the national-forest system, nothing herein shall be construed to modify, limit, or change in any manner whatsoever the future ownership and administration by the United States of existing national forests and related facilities, or hereafter to restrict or prevent their extension through the acquisition by purchase or otherwise of additional lands for any national-forest purpose: *Provided further,* That this Act shall not be construed to limit or repeal any legislation authorizing land exchanges by the Federal Government, and private lands acquired by exchange within the limits of any area subject to a cooperative agreement of the character herein authorized shall hereafter be subject to the provisions of this Act.

Sec. 2. No cooperative agreement shall be entered into or continued in force under the authority of this Act or any land acquired hereunder turned over to the cooperating State for administration, development, and management unless the State concerned, as a consideration for the benefits extended to it thereunder, complies in a manner satisfactory to the Secretary of Agriculture with the following conditions and requirements which shall constitute a part of every such agreement:

(a) In order to reduce the need for public expenditures in the acquisition of lands which may be brought into public ownership through the enforcement of appropriate tax delinquency laws, and, by bringing about the handling of such lands upon a sound social and economic basis, to terminate a system of indeterminate and unsound ownership injurious to the private and public interest alike, no additional lands shall be acquired within any State by the United States under this Act after June 30, 1942,

unless the State concerned has prior thereto provided by law for the reversion of title to the State or a political unit thereof of tax-delinquent lands and for blocking into State or other public forests the areas which are more suitable for public than private ownership, and which in the public interest should be devoted primarily to the production of timber crops and/or the maintenance of forests for watershed protection, and for the enforcement of such law: *Provided,* That in the administration of this Act prior to June 30, 1942, preference will be given to States applying for cooperation hereunder which provide by laws for such reversion of title under tax delinquency laws.

(b) In order to insure a stable and efficient organization for the development and administration of the lands acquired under this Act, the State shall after the passage of this Act provide for the employment of a State forester, who shall be a trained forester of recognized standing.

(c) The Secretary of Agriculture and the appropriate authorities of each cooperating State shall work out a mutually satisfactory plan defining forest areas within the State which can be most effectively and economically administered by said State, which plan shall constitute a part of the cooperative agreement between the United States and the State concerned: *Provided,* That nothing herein shall be held to prevent the Secretary of Agriculture from later agreeing with the proper State authorities to desirable modifications in such plan.

(d) No payment of Federal funds shall be made for land selected for purchase by the United States under this Act until such proposed purchase has been submitted to and approved by the National Forest Reservation Commission created by section 4 of the Act approved March 1, 1911 (36 Stat. 9661; U.S.C., title 16, sec. 513).

(e) Subject to the approval of the National Forest Reservation Commission, the Secretary of Agriculture is authorized to pay out of any available money appropriated for carrying out the purposes of this Act any State, county, and/or town taxes, exclusive of penalties, due or accrued on any forest lands acquired by the United States under donations from the owners thereof and which lands are to be included in a State or other public forest pursuant to this Act.

(f) The State shall prepare such standards of forest administration, development, and management as are necessary to insure maximum feasible utility for timber production and watershed protection, and are acceptable to the Secretary of Agriculture and shall apply the same to lands acquired and placed under the jurisdiction of the State pursuant to this Act.

(g) That with the exception of such Federal expenditures as may be made for unemployment relief, the State shall pay without assistance from the Federal Government the entire future cost of administering, developing, and managing all forest lands acquired and over which it has been given jurisdiction under this Act.

(h) During the period any cooperative agreement made under this Act remains in force, one-half of the gross proceeds from all lands covered by said agreement and to which the United States holds title shall be paid by the State to the United States and covered into the Treasury. All such payments shall be credited to the purchase

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price the State is to pay the United States for said land, such purchase price to be an amount equal to the total sum expended by the United States in acquiring said lands. Upon payments of the full purchase price, either as herein provided or otherwise, title to said lands shall be transferred from the Federal Government to the State, and the Secretary of Agriculture is authorized to take such action and incur such expenditures as may be necessary to effectuate such transfer.

(i) Upon the request of the State concerned, any agreement made pursuant to this Act may be terminated by the Secretary of Agriculture. The Secretary of Agriculture may, with the consent and approval of the National Forest Reservation Commission, after due notice given the State and an opportunity for hearing by said Commission, terminate any such agreement for violations of its terms and/or the provisions of this Act. If such agreement is terminated, the United States shall reimburse the State for so much of the State funds as have been expended in the administration, development, and management of the lands involved as the Secretary of Agriculture may decide to be fair and equitable.

(j) The State shall furnish the Secretary of Agriculture with such annual, periodic, or special reports as he may require respecting the State's operations under its agreement with him.

(k) When a State or political unit thereof acquires under tax delinquency laws title to forest lands without cost to the United States and which lands are included within a State or other public forest, the Secretary of Agriculture, on behalf of the Federal Government, may contribute annually out of any funds made available under this Act not to exceed one-half the cost of administering, developing, and managing said lands.

Sec. 3. For the purposes of this Act, there is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, a sum or sums not to exceed \$5,000,000, as Congress may from time to time appropriate.

### Forest Purchase Areas Established

The purchase program of the National Forest Reservation Commission was extended into the West at its meetings on August 23 and 29, when the establishment of two redwood acquisition areas in northwestern California, an area in Idaho, and two in Utah were approved, together with the actual purchase of 51,613 acres of cutover pine lands on the Nevada side of the Tahoe National Forest. The same meetings authorized creation of the Grand Lake National Forest, in Maine, and approved the purchase of 1,386,250 acres at a cost of nearly \$6,375,000, in twenty-six states.

One California redwood unit will be located in Mendocino and Sonoma counties, and the other in Humboldt and Del Norte counties. Approval of the purchase of lands for National Forest purposes was given at the special session of the California State Legislature in September, 1934, at the suggestion of Governor Frank F. Merriam. S. B. Show, regional forester, United States Forest Service, has announced the intention to acquire about 200,000 acres of virgin and cutover redwood timber lands so as to assure, through Federal ownership and management, the stabilization of the economic life of the region. These forests will be logged under selective cutting practices, grazing areas will be set aside for livestock and improvements will be built to safeguard the resources from fire. Virgin forest conditions will be preserved, however, around the

more important recreational centers, public camp grounds will be established, land will be leased for summer homes, and fishing and hunting will be permitted.

Other western purchase areas which were approved included one of 142,000 acres surrounding the Arrowrock Reservoir, in Idaho, and two units of 58,200 acres, and 33,250 acres in the Uinta and Wasatch National Forests, of Utah. Lands in these units will be purchased in order that the Forest Service may maintain them in forest and grass cover to protect the watershed from erosion.

The Grand Lake National Forest Purchase Unit, in Maine, will have a gross area of 785,000 acres in Aroostook, Penobscot, Hancock, and Washington counties. Heretofore the only Federal forest area in Maine has been about 30,000 acres of the White Mountain National Forest. Ultimately about 600,000 acres may be purchased. The Grand Lake unit is an important timber, watershed and recreational area, capable of development through intensive forest management.

Heavy purchases were included in the Lake States, including 242,584 acres in the Superior National Forest, in Minnesota, and over 71,000 acres in the Chippewa National Forest in the same state.

An area of 13,053 acres in the Nantahala National Forest, in North Carolina, described as "the last large stand of virgin hardwoods of the Southern Appalachian type," and containing a fine stand of tulip poplar, was approved at a purchase price of \$365,540.

Another area of fine river bottom hardwood stands in the Delta National Forest Purchase Unit, along the Yazoo River, in Mississippi, comprising 13,344 acres, was approved at a cost of \$733,920.

More than 100,000 acres were approved for purchase in the eight National Forest units in Missouri; 101,351 acres in Virginia; 85,000 acres in the Monongahela National Forest, in West Virginia; and the Cumberland National Forest, in Kentucky, was extended southward to the Tennessee line. The Commission also authorized an addition of 273,000 acres to the Green Mountain National Forest, in Vermont, extending southward through Bennington and Windham counties, and 48,640 acres to be added to the Kisatchee National Forest, in Louisiana.

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## Book Reviews

**THE PRACTICE OF SILVICULTURE.** By Ralph C. Hawley. Third Edition. Published by John Wiley and Sons, Inc., New York City. 340 pages illustrated with diagrams. Price \$4.00.

Silviculture, which Dr. Fernow described some years ago as "the pivot of the whole forestry business," is considered by Professor Hawley as the production of wood crops. To a considerable extent the owner is guided by the desire to produce these wood crops so as to secure the highest financial return in a given time, but this ideal is always tempered to the specific requirements of the owner. In this third edition of "The Practice of Silviculture" since its original publication in 1921, Professor Hawley has brought the subject matter abreast with recent developments in America so that, to an extent impossible in the first edition, this presents a description of American silviculture experience from an American viewpoint. Necessarily, however, it is still governed by the older records available from European forest practices.

Primarily a text book for use by advanced classes of forestry students, this will be found a valuable reference for all who have the responsibility of caring for forest land or advising forest owners. Furthermore, a large number of references follow each chapter and deal with contemporary discussions of silviculture practice. These range from the application of the classical cutting methods such as the shelterwood, the seed tree, and intermediate, through improvement cuttings to various phases of forest protection. These references form a valuable bibliography of contemporary forest practice.—G. H. C.

**AN OUTLINE OF GENERAL FORESTRY.** By J. S. Illick. Published by Barnes & Noble, Inc., New York City. 255 pages illustrated with diagrams. Price 75c in paper and \$1.50 in cloth.

A veritable encyclopedia of forestry facts and figures have been assembled by Professor Illick in "An Outline of General Forestry" and presented in a surprisingly readable and easily available form. The entire subject of forestry is presented in thirty chapters, each followed by a series of questions which single out and impress the significant facts of the section.

Designed as an elementary, introductory book on forestry for college students and C.C.C. workers, it will be welcomed wherever authoritative information on forestry is desired.—G. H. C.

**THE FORMATION OF CAPITAL.** By Harold G. Moulton. Published by The Brookings Institution, Washington, D. C. 207 pages. Illustrated. Price \$2.50.

The third volume in a series of four devoted to analyzing the distribution of national wealth and income in its relation to economic progress—this book deals principally with the factors involved in the transformation of money savings into capital equipment.

Illustrated by a series of diagrams and charts, the book challenges certain set ideas in the economic set-up governing the growth of productive capital. It tends to demonstrate the dependence of capital expansion upon consumptive demand and reveals how excessive savings may produce financial disorder rather than new capital goods.—L. M. C.

## FORESTRY IN CONGRESS

By G. H. COLLINGWOOD

With millions of dollars appropriated or allotted for forestry and conservation during the Seventy-fourth Congress, which adjourned on August 26, there is reason to consider the past eight months as a period of outstanding accomplishment. Much of the money was allotted from the \$4,880,000,000 work relief appropriation, but the basic work of the Forest Service, the National Park Service, the Biological Survey, the Soil Conservation Service and other similar government agencies was financed from appropriations considered by congressional committees and passed in the usual way.

A major portion of the emergency funds, totaling \$600,000,000 will go to the maintenance and administration of the Civilian Conservation Corps, but \$15,000,000 was added to an earlier allotment of \$30,630,000 to buy forest lands where this army of C.C.C. boys can perform useful work.

To more effectively protect the forests and individual trees more than \$12,000,000 was set aside to fight insect and fungus pests. Outstanding among these peacetime struggles in which the government has embarked is the effort to eradicate the Dutch elm disease. For this, \$2,500,000 was allotted, and some 5,000 men, most of whom would otherwise be unemployed, are now at work. The campaign centers around New York City, and in the neighboring states of Connecticut and New Jersey.

Besides protecting our forests and shade trees from insects and fungus diseases, thousands of acres have been restored to productivity by the planting of millions of trees, vast forest areas have been more adequately protected from fire by the erection of new lookout towers, and from the permanent ranger stations, new roads and trails, and miles of new telephone lines make the forest more accessible. All this is adding to our national wealth.

The most lasting forestry contribution of the recent Congress is the Fulmer Act, signed by President Roosevelt on August 29, under which the Federal Government may co-operate with the states to buy land in regions agreeable to the state foresters where permanently organized State Forests are desired.

The act carries an authorization for appropriations of \$5,000,000, sufficient to acquire approximately a million acres of cut-over land, much of which may be naturally restocked with forest growth. How much more land can be acquired and turned over to the states will depend upon future Congresses.

Along the Rio Grande River in the southwest corner of Texas and bordering on old Mexico, is an area as large as the State of Delaware of which the State of Texas now owns one-fifth. Here, where the Rio Grande makes a wide bend, Congress has given authority for creating the Big Bend National Park, and soon the land will be acquired to be turned over to the National Park Service to administer.

Under the National Park Trust Fund Board created by the act of July 10, funds may be given the Federal Government for acquiring, maintaining or developing National Parks or Monuments.

Forests and Parks, however, are not alone

in receiving the advantages of legislation passed by the recent Congress. That the wildlife may be protected and their number increased the recent Congress passed legislation allotting \$6,000,000 from emergency sources with which to purchase and restore land for wildlife and migratory waterfowl. This is in addition to any other appropriations or allotments. The same act made it easier for hunters of ducks and geese to purchase the so-called "duck stamps." These cost \$1.00 each and most of the fund of more than half a million dollars thus created each year will be used to purchase land for migratory wild fowl refuges and to administer the laws protecting wild fowl in their migratory flights.

During the year, the new government bureau created to stop the wasting of top soil through erosion was transferred from the Department of the Interior to the Department of Agriculture and given the name of Soil Conservation Service.

The bill introduced by Senator Lewis, of Illinois, to change the name of the Department of the Interior to the Department of Conservation and Works and authorize the transfer to the newly named department of all government activities dealing with conservation and public works, was the subject of wide publicity, but was not brought to a vote. Before adjourning Senator Lewis announced that he intends to bring the bill up for a vote early in the coming session.

Another bill which failed to receive final consideration would add lands to the Grand Teton National Park in Wyoming. This had been introduced by Senators Carey and O'Mahoney of that state and was subject to active controversy because it would have included within the National Park, the Jackson Lake Reservoir and two other smaller lakes which are used as reservoirs and which are now in the Teton National Forest. Supporters of National Park standards as conceived in the early development of the National Parks by the late Stephen Mather, object to the inclusion of any commercially used waters or lands within National Parks.

Similarly, no action was taken on the bill which would authorize the Secretary of the Interior through the National Park Service, to study and report on all publicly owned lands to the end that they may be more effectively used for recreational purposes. This same bill, if passed, would authorize the President to transfer various tracts of federally owned lands to the states wherever it appears that the land can be more effectively used for State Park purposes. Although final authority for such transfer must be approved by Congress, many forests and conservation leaders fear it may open the way to take lands from existing National Forests to build up State Parks.

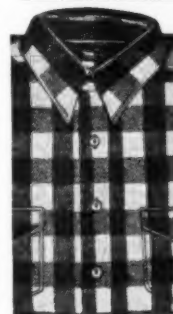
Late in the session Senator Fletcher and Representative Caldwell, each of Florida, introduced a bill to authorize the Federal Government to make long-time loans to the lumber industry. With the authority of such laws the Federal Government would act as banker and could require the application of forestry rules and practices on the lands owned by the borrowers. This and other forestry and conservation legislation will be carried over into the January session of the Seventy-fourth Congress.



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## SHOULD FARMWOODS BE GRAZED?

(Continued from page 595)

spring beauty, and violets, which were largely eliminated by grazing, such weeds as ragweed, pokeweed, field chickweed, thistles and ironweed occupied the area. The invasion of the woods by weeds is unfavorable for the establishment and growth of tree reproduction.

The results of these tests indicate that under grazing practices common to much of the better agricultural sections of the corn belts, the forage productivity of such areas is insufficient to maintain animal weights.

It was obvious that with two, four, or even six acres allowed for each animal unit, woodland grazing without supplementary feeding results in serious deterioration of the animals. Even where the animals are not wholly confined to the woods, deterioration will result unless supplementary feed or adjacent pasture is available after the woods forage is utilized.

Woodland grazing under the three intensities studied results in early utilization of grass and other herbaceous forage and considerable browsing of tree foliage. This is followed by close cropping of the less palatable plant growth and complete defoliation of all tree reproduction that can be reached or ridden down. The data clearly indicate that continuous grazing under the intensities studied consistently lowers the forage productivity of the farmwoods both in the amount of vegetation which can be produced and in its palatability

and nutritive value. These changes take place not only through the selective effect of grazing but also through a deterioration in the productive capacity of the site.

While this deterioration in the site quality also influences the growth of the timber, the most important and most noticeable effect of continuous grazing is the gradual opening up of the stand. The cumulative effect of the three years of grazing clearly indicates that continuous grazing will ultimately destroy the farmwoods. Under grazing intensities common to the corn belt, livestock repeatedly browse on all tree reproduction and eventually eliminate it. The removal of mature trees through cutting or death creates openings in the overhead stand and since there is no reproduction established to fill these openings, the conversion of these woodlands to open pastures is inevitable.

The timber producing capacity of the farmwoods is also destroyed when sheep, hogs, or horses are allowed to graze in the farmwoods. The close cropping of vegetation by sheep, the browsing of tree reproduction by horses, the destruction of natural soil conditions by hogs will result in woods deterioration similar to that described for cattle. When all forms of domestic livestock have access to the farmwoods, the change from a woods to an open pasture is very rapid.

## PARADISE FOUND

(Continued from page 585)

which may be seen flocks of white wood ibis, and other water birds as they live and multiply in this sanctuary. In the lagoons may be seen wild duck, and one may leisurely study alligators as they lie basking in the sun.

In the Hammock are hundreds of grey squirrels. Wild turkeys strut in their natural haunts. Covies of bob-whites calmly watch one walk or drive by. Nut-hatches, woodpeckers, blue-jays, cardinals, finches, wrens, the titmouse, Florida jays, robins, pine warblers, cat-birds, and many other land and water birds are found in great numbers. Over a hundred different species of birds make the sanctuary their year-long home.

Briefly, this is Highlands Hammock, na-

ture's paradise. Word pictures cannot describe it. One must see it to appreciate its wonder. Nature lovers can spend a week within the enclosure and never "scratch the surface." One may study the forest life and struggle that has taken place there during the hundreds of years nature has reigned supreme. Standing in the shade of those gnarled and ancient oaks, one pictures the conflicts that have taken place between reptiles and mammals, birds and animals, while these monarchs of the forest have majestically stood as silent referees. Here is living history.

Through the generosity of a noble and nature-loving woman, other nature lovers are permitted to have access to America's tropical Garden of Eden.

## MORE POWER TO THE FIRE FIGHTERS

(Continued from page 591)

have other advantages. The discharge can be shut off without injury to pump or hose and without stalling the motor. They can also be directly connected with the hose line for relay pumping instead of pumping into and out of a portable tank, but the second pump should be run at a speed which will not collapse the discharge hose in the suction hose position.

In cooperation with manufacturers a light weight and a medium pumper were developed for commercial production, the first using a two-cycle outboard motor and single stage pump while the second uses a four-cycle motor and a two stage centrifugal pump. In addition twelve pumpers, using a four cylinder truck motor driving a single stage centrifugal and mounted on a two-wheel trailer, were built at the Department shops.

On a peat fire last summer one of these pumps drew water from three jetted wells and supplied eight nozzles. Manifold suction intakes were provided so that the Department's standard two-inch suction hose could be used. In addition to these pumps of 250 gallon capacity and using two-inch discharge hose, one still larger unit using a

six cylinder industrial motor driving a two-stage 400 gallon per minute pump was built. If the knapsack pumps are compared to the infantryman's rifle, the four sizes of centrifugal pumps may be regarded as the sub-machine gun, the machine gun, the field artillery and the siege gun.

Two plows have also been improved or developed in cooperation with manufacturers. While one is a double moldboard type or "middle-buster" and the other uses a single moldboard they have certain features in common. Unlike all former brush breaker plows, the wheels have been moved back, so that wheels and axles will escape side thrust from the tractor. At the same time depth of plowing is gauged practically at the point of the plow, which is desirable on rough ground. Both plows may be adjusted for depth of plowing from the rear by an operator standing on a platform. Most important of all, each is equipped with a rolling coulter which will lift the plow out of the ground when it encounters an obstruction through which it cannot cut. Thus the plow point is never stuck among the roots of a stump and the plow is not subject to breakage while attempting to free the unit.



## NO CLOSED SEASON—NO BAG LIMIT

(Continued from page 583)

coming up occasionally to reconnoiter. He didn't work on the dam, and I didn't expect him to. He was the scout, and he went back toward the colony to bring the workers. And he brought them quickly. But just as they came within range, two boys who had been gathering nuts some distance downstream, came laughing and splashing their way up. That ended any opportunity of getting the picture, and the pond froze solid the next day, as the beaver plugged the dam late that night. Consequently, we have yet to get pictures of beaver in the wild building their dams.

For several years the department has been collecting footage which ultimately will be assembled into a four-reel picture to be called "Timber, A Wisconsin Story." The whole history of logging in Wisconsin is being recorded—from the days of the earliest cruisers and old-time lumberjacks, to present day tractors and steam haulers.

Some of the best human interest scenes were taken in bunk houses and cook shanties. One old lumberjack followed what might be called a "direct action" method of eating. He dispensed entirely with such folderol as knives, forks and spoons. He consumed hard boiled eggs, shells and all, and the bones of salt fish offered no obstacle whatsoever.

In its photographic program, the conservation department does not employ trick or fake photography. The aim is to tell the true story and the whole story.

In making the picture on "Timber" a long search was conducted before a yoke of oxen could be found, but when a backwoods farmer was finally located who had a big yoke of "working cattle" the excellence of the animals for photography justified the wait. They were large Holsteins (easily as large as Babe, Paul Bunyan's blue ox) and their natural black and white coloring made a striking subject against the green pine, which photographed black, and the white snow. These animals were taken many miles by truck and a special railroad car furnished by a lumbering company to get them deep into the woods, where we made truly authentic pictures of skidding and decking logs with oxen. This is probably the only time that motion pictures have been made of oxen working in northern woods, and from the historical standpoint, the footage is very valuable.

I have just said that we do not employ "trick" photography, but this does not preclude some of the "tricks of the trade," the use of which tends to enliven the picture. For instance, making shots against the sun, or from the ground rather than eye level, make for scenic and action effects which build up the picture for the lay observer.

In the timber picture I remember two ground level close-up shots which were tremendously effective. Both horses and our yoke of oxen were used skidding big pine logs up a steep grade. Placing the camera right on the ground, I photographed just the legs of first the team of horses and then the yoke of cattle as they went past. It was a quartering shot with good light at a distance of nine feet.

The result was a remarkable contrast of muscular play. The slow, plodding trudge of the oxen made the horses' spurt seem almost nervous, and the ripple of muscles below gleaming heavy coats was beautiful to behold.

Another effective ground level shot was made of the start of a coon hunt trial. In hunt trials a tame coon is led between the starting flags and around the course, laying the scent for the hounds to follow. A good coon hound trailing a hot scent is utterly oblivious to most things in his way, so I lay down directly on the scent forty feet in front

of the start, with the camera directly on the ground. Just before they were released, I started the camera, held it firmly, and ducked my head. I still believe that each of the eight dogs ran over me and howled in my ears, but my partner said only four actually hit me. Anyway, the result was worth the effort.

Vertical shots, taken from above, with cross lighting to throw shadows, produce beautiful results. I have found that photographing deer from above is comparatively easy as deer apparently do not anticipate danger from that direction. This, of course, may not be true in a country where mountain lions and similar tree climbing "varmints" are deer predators.

Close-up vertical shots of detailed operations are desirable, but the best results can be obtained only when there is strong enough side light to cast shadows.

Photography, whether movie or still, is the best means of developing an amateur appreciation of nature. America needs more of this amateur appreciation. I differentiate between amateur and professional appreciation in the relative interests of photographers on the one hand, and on the other "collectors," whether they be lumbermen, power companies, sportsmen, or museum representatives. Our whole development, aptly called the conquest of America by many historians, has been based on a psychology of taking. We have taken so much that there is little left to take.

But with nations as with individuals, when we reach maturity we forget some of our habits of childhood. The boy who collected birds' eggs or stamps, looks back from maturity with a little touch of shame and amusement at his early proclivities. Let us hope that as a nation we will do the same, but go one step further and regenerate, restore, truly conserve the out-of-doors.

Photography makes it possible to take and leave at the same time. Further, by taking and leaving, photography stimulates public interest in leaving; it does much toward creating that sympathetic cooperative public opinion in which lies the future of conservation.



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## PROSPECTOR OF

## JACKSON HOLE

(Continued from page 587)

the squirrels chatted vociferously. Buster, if irritated, would justify his name by charging and upsetting the furniture. Add to this the audible impatience of Pitchfork Tillman and Nick Wilson. Lucy was ladylike but nevertheless insistent. To this motley circle Uncle Jack would hold forth in inimitable language, carrying on a running stream of conversation—scolding, lecturing, admonishing, or when discord became acute, threatening dire punishment if they did not mend their ways. It is hardly necessary to add that to Uncle Jack's awful threats, and the vivid profanity which, it must be admitted, accompanied them, the members of the household remained serenely indifferent, and there is no record that any of the promised disasters ever fell on their furry heads.

Having no windows, Uncle Jack left his door open during good weather. One spring a pair of bluebirds flew through the open door into the shack and, having inspected the place and found it to their liking, built their nest behind a triangular fragment of mirror which Uncle Jack had stuck on the wall. Uncle Jack then cut down the door from its leather hinges and did not replace it until fall. Six successive summers the bluebirds returned to the cabin and, finding the door removed in anticipation of their coming, built their nest and raised their young behind Uncle Jack's mirror.

Nearby Uncle Jack made a little graveyard for his pets, as they left him one by one. It was lovingly cared for. In the course of the twenty-four years which he spent there the burial ground came to contain many neat mounds—mounds of strangely different sizes. But Lucy, Pitchfork Tillman, and Dan outlived Uncle Jack.

He would not accept charity, even during the last year or two of his life when he was nearly destitute. Neighbors had to resort to strategy to get him to accept help.

On his periodic trips up and down the canyon, Austin brought the mail to Davis and to Johnny Counts, who lived next to the east. Counts and Davis, too, occasionally exchanged visits. On March 14, 1911, Austin called at Counts and, finding that nothing had been heard of from Uncle Jack for some time, snowshoed on down the canyon to see if all was well.

The old man lay in bed, delirious. The last date checked off on the wall calendar was February 11. Outside the cabin, elk had eaten all the hay, and the horse and Lucy were at the point of starvation. Austin stayed by his bedside for several days, then, finding it impossible to care for Uncle Jack decently in the dark old cabin, summoned Counts. Several days later they moved the old man six miles up the river, carrying him where they could, most of the way pulling him along in a boat from the shore. The old trail was one Jack himself had built many years before. In Counts' cabin, a week later, Uncle Jack died.

Austin made Uncle Jack's coffin from one of the old man's own sluice boxes. Together the two men carried Uncle Jack to the grave they had dug for him at Sulphur Springs, nearby in the canyon. A wooden headboard on which Ranger Austin carved the inscription, "A. L. Davis, Died March 25, 1911," marks the grave—there Uncle Jack sleeps alone.

In Davis' shack was found the "fortune" which placer mining had brought him—twelve dollars in cash and about the same value in gold amalgam.

## ABROAD IN CALIFORNIA

(Continued from page 580)

bears half a dozen different kinds of leaves. It is not the product of a grafter with a sense of the ridiculous. It simply leaves out without a decent simplicity. Its specific name, *diversifolium*, describes the one habit and its popular name, bottle-tree, describes its form—a trunk with a bottle shape. Its wood is so soft that it can be torn apart with a finger nail. The tree's stability is given it by fibers of the inner bark, from which Australian natives spin a twine for fish nets. Its tap roots, boiled, resemble turnips and its brown seeds produce a coffee. In the trunks of bottle-trees, thirsty aboriginals scoop out hollows which fill with an acrid-flavored water. The tree has an insane eccentricity: suddenly, for no apparent reason, and at no predictable season, it will drop its curious foliage and stand nude until, for no better reason, it abruptly decides to dress again.

We in California who have no fares for steamship travel look for lands we couldn't visit in the foreign trees by the way. A twenty mile drive to the Pacific resulted in twenty-eight stops, once for gas, once for candy bars and twenty-six times to look at trees.

Arbutus! Wasn't it a trailer back East, whose scented flowers we had hunted in early spring? What a surprise to find it here, a beautiful little tree leaning over an old fence. Real arbutus. Strawberry tree, it's called, for the berries it will bear in the fall. Wasn't it Virgil's goats that browsed on its shoots? Wasn't it with an arbutus wand that Cardea, goddess of domesticity, shielded little children from harm? Doesn't Ovid tell us that "arbutus with its blushing fruit" was among the trees drawn by Orpheus' lyre?

And here, another classic oddity—the rose-apple with its crown of glossy, lance-shaped leaves and clustered flowers with myriad white stamens. It's an East Indian that went to India. The Sanskrit for it is *jambu* and, in Hindu mythology, it ranks as one of the four trees that upheld the corners of the world, was of colossal size, bore fruits the size of elephants and sent healing rivers from its roots. By late summer, this wanderer in California will bear the yellow apples that exhale a delicate fragrance of rose-water.

Frequently we see another tree of Indian associations—the deodar, God-tree of the Hindus, and one of the finest conifers that grows. In Kipling's tales and poems it appears again and again. It furnishes the forest retreats of native shrines and temples at lower elevations in the Himalayas. It seems perfectly at home in California. A famed planting was made years ago along the approach to a foothill ranch house. Settlement pressed in. The road is an avenue in a populous suburb and it has become customary to string these trees at Christmas time with thousands of colored bulbs—"a mile of living Christmas trees."

And what is this curiosity we see so often—a pretzel-maker's design for a pine? There's a story about how it went from Chile to England. While the officers of George Vancouver's expedition were being banqueted in Valparaíso, the surgeon-botanist slipped into his pocket some of the nuts served at table. Planted on shipboard, they became sizeable seedlings by the time England was reached. They lived and grew to become one of the strangest looking trees on earth—spires of needle-clothed, blunt, contorted branches. That a monkey would be exercised to find his way through it suggested its name—the Monkey Puzzle. It is a relative of the Norfolk Island pine, familiar to people who buy thousands of them in little pots every Christmas time.

These ranks of uniform somber trees that

border the long panel of lawn before a white Mediterranean-type mansion are Italian cypress. For centuries it has gathered funeral associations for man. Egyptians fashioned their mummy cases of its almost invulnerable wood. Greeks engraved their laws upon tablets of cypress. It stood sacred to the Roman god of the underworld and was planted along approaches to the tombs of notable dead.

At the roadside before this same mansion stands a row of tall spreading trees, with lacy foliage—*Jacarandas*, cousins of the *catalpa*, from Brazil. And were we Brazilians, we would call them rosewoods for the fragrance of the timber.

On a mile, we turn into an avenue of camphor trees, indigenous to China and Japan. Forests of them in Formosa yield the camphor of commerce. Pausing to investigate, we find that any part—leaf, twig, wood, berry—carries the familiar essence.

And so it goes. All during the morning, as we head for the ocean, we appease in some measure our spring touch of wanderlust, by meeting these natives of other lands. There seems no end of them in this wide, haphazard arboretum—bamboo thickets; groves of Mexican avocado; an Indian rubber tree, native of Assam, growing in a damp garden; a great Moreton Bay fig with its fantastic buttressed roots; a Brazilian coral tree; cedars of Lebanon; plumed clumps of Pampas grass; and almost in the surf, the pokeweed of the Argentine, the Ombu tree, whose speed of growth is rivaled by the eucalyptus and whose lovelier, Spanish name is *Le Belle Sombra*—tree of the beautiful shadow.

On our way home the following day, we stop at a roadside stand for a "lug" of oranges and suck them through holes in the skin as we drive along. Even they, queen of California fruits, are not natives. Soldiers of Alexander, home from the conquest of India, are reported to have brought the orange to Europe, whence, in due time, it came to America. And so, sucking and meditating, we ride along through the dusk and scratch at sand-flea bites on our ankles. Perhaps the jocular wag was right—the fleas at least belong to the Golden State. Or did they hop ashore, perhaps from the galleons of Sir Francis Drake? At home, munching some of the ripe fruits from our Chinese loquat trees and spreading crackers with choice jelly from our tropical guavas, we watch the sky grow dull behind the mighty Atlas Mountain cedars that border our neighbor's garden.

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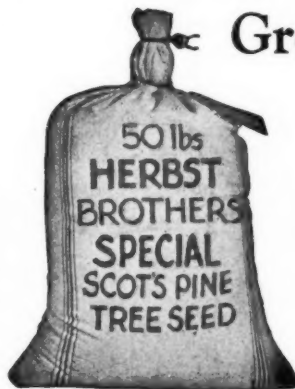
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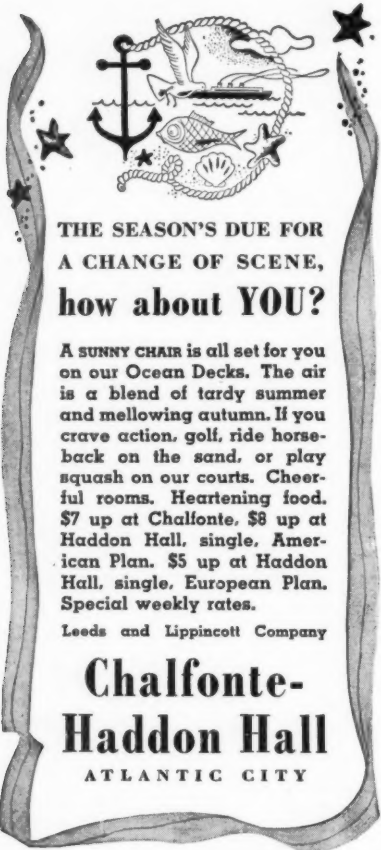
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## THE BUILDING OF THE PAPOOSE TRAIL

(Continued from page 574)



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### Peonies

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I begins by explaining the hardships of a simple pack horse's life. Soon they were just begging me to lighten the loads. I did, too. I prances into the tent and weeds out a ton of water filters, medicine kits, thermos bottles, air beds, folding tables, chairs, stoves, bathtubs and the devil knows what else! I clawed out trash enough to stock a fair-sized store—lacking only sewing machines and cradles—and left it stacked up there by the Papoose Meadows. Then I gives Sissy the first lesson, and say, it ain't so bad teaching a pretty girl to throw a single diamond hitch.

We moves on up to Beaver Creek and pitches camp there along about supper time. I digs out my sour-dough jar and calls the missus over to me: "Marm," says I, slick and calm, "in case you hit a bread famine, permit me to impart primary instruction leading to the degree of 'Sour Dough Artist.' The Dutch oven you puts on the stove, so-fashion, the correct temperature being obtained when it just browns flour nice. Then you scoop out a little basin in the top of the flour in the sack—you don't need a pan—and you pour in the dough so fashion, adding soda, salt and sugar, like this. Next you take a knife—no, a fork or spoon won't do—and you mix it just so, and you gauges the time of stirring by a little song. There are several songs, but the best one for ladies is as follows:

Oh, scoop out your flour,  
And run in your dough,  
Add sugar, salt and soda,  
And stir it just so.

Beat it all smooth,  
Make up your bread,  
If you ain't a real artist,  
It's heavy as lead.

"Sing that twice over," says I, "then she's mixed."

I earn my money blame hard, but I would willingly give five good clinkers to have Trapper Jim take in that sketch—the old lady powdered with flour and daubed with dough—a-standing by the flour sack, handy to the "nauseous pot," beating up bannocks with a knife, and singing an expurgated edition of that song like life depended on it.

I gets in solid with the women folks, however, when Buddy starts kicking about the grub that night: "Look here," says I, "one more growl and you gets elected as chief dish-walloper for one week in addition to your job as young sawmill. I don't care if the grub is rotten. Savvy?"

So I wipes off one old score, and keeps a look out for another chance to uphold the honor of the hills. Just as we had finished breakfast next day, it starts a gentle but thorough job of raining. I sees a hopeful glint in my chief victim's eye but I dispels it.

"Gone, Old-Timer," says I, "are those happy days of youth when rain proclaimed no school in your boyish world. Classes are held in Gold Basin despite rain and corruption generally."

About two days later I has a little run-in with Buddy and Sis. He comes in at night and starts ripping around because she hasn't dried out his socks. "You're a dead-head," he yaps, ugly as a coyote. "Why the devil didn't you?"

"You shouldn't have left your dirty old socks around," she fires back at him. "I'm glad I forgot."

"Look here, children," I edges in. "I ain't used to all this high society act. It's job enough scraping these trails here without dig-

ging into each other. That's darn poor stuff, Buddy, to pass a lady. A real man don't talk to women the way you did, Buddy. It's a tin-horn trick; you don't belong there."

"And that ain't the style our western women dishes up to the men folk," I says to Sis. "Buddy is working well, and he must have his socks and things fixed proper. We are all up against a genuine proposition. A real western woman takes care of her men and does it smiling."

Slowly I hammers my tenderfeet into shape, making a sort of flying ax handle out of Pink-Neck and a portable sawmill out of Buddy. But I still remembers a few that's coming to them. So one night after Old Inflownce had been messing around with the supper I goes and digs some white hair off one of the saddle blankets and to the horror of all I fishes that out from under the stewed grouse I was eating. Then, solemn, I casts a cold, accusing eye on the old duffer's grey head. "You need a haircut," says I, "and you're going to get it."

"I may need it, but I'll be blowed if I let you cut stairs up and down my head."

"Prepare to swell then, for a mowing is due in your direction in ten minutes," I announces.

He hollered and growled awful, but I was adamant. "Let me see the scissors," he pleads at last. I pulls out my hunting knife and strops it on my bootleg. Pink-Neck runs riot. I gets him down and declaims as follows:

"You dirty, shiftless, scraggy old blowsey bum. You shed your locks through the grub and then resists modern tonsorial touches. Hold your blame block still, or I'll make you look like Sitting Bull after St. Vitus dance had run a scalping knife over you." Then I pruned him, short as peach fuzz, which ain't exactly the way a fellow ought to be during our frosty falls.

I knew old Trapper Jim would be right pleased.

We got to hitting out the trail pretty speedy after that, and I thinks the mental caliber of my rescuees needs reboring to larger diameter, so I decided on a first lesson in forestry with Burnt Ridge for classroom. There was about a foot of snow on the ground. Now a burnt sweep of timber, black and bare against the white, is a powerful cheerless, gruesome sight, but impressive.

"This heart-rending abomination of desolation," I lectures, "is directly due to an ignorant old idjit of a sheep herder, who left a camp fire burning here three years ago. It will take about ninety-seven more years before the good God blots this scar off the map of Idaho."

"It's a monument to another bunch of idjits, too. I refers to them glorious, grafter patriots at Washington. They won't dig up enough money to put a man-sized organization into these hills and prevent it. Therefore, you and me and Buddy is alone on a job that ought to have a dozen men on it. We camp in the snow and work like fools, all because we ain't backed up strong in Congress."

"Why, I read myself how one blooming, blithering boddler—Harrington his name was—riz right up in the Senate and coughed up a lamentation about the indolent and inefficient Forest Service—ought to abolish it—timber wouldn't burn, or if it did it improved the forest. What do you think about them sentiments, near-to? That dead and down criss-cross tangle of fallen trees reaches a good mile, and if we cut it out in two days we are damn lucky. Come now, class is dismissed and practical experience with the ax is in the order of events."

We smashed through her at last and made up for lost time in the open timber at Half-Way Creek, where the snow was still eight

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inches deep. I recalls another score that needs settling:

"Buddy," says I, peeling my clothes, "here is where we take an ablation mixed with chills." He didn't need a second call, but the old gazabo stands there scornful and uppity.

"Come on, Old-Timer," I calls, "crawl under the creek."

"Not by a damn sight," he replies. "I may look like a bonehead since I went through the barber shop, but this ain't the day when I go swimming in the sherbet."

"For eleven days," I announces calmly, "to my knowledge you ain't had a proper slush-down. The minute I get out of this pool you're going in. The one choice you have is with birthday or store clothes on." Then I splashes the ice water up over my chest and lines out for the bank. Honest, he shucked his raiment quicker than any human I ever seen over kid's size.

After that I had him thoroughly domesticated and things changed. You couldn't hold that crew back. They tore into the trail like regular forest rangers. Once steam was up we plowed her out wide and handsome. We built two pack-horse bridges over Tin Cup Creek and laid a lot of corduroy at Elk Meadows. Boys! Boys! how we did whoop her up! Ninety-six solid hours of work in one week when we belted out an even twenty miles of trail, and that record stands to this day.

"How did you get started in this game?" says Pink-Neck to me one night.

"Well," I replies, lighting my pipe, "I was mining up in the Lost Range country, making twice what I do now, but a young feller from Washington comes out there inspecting the forest and he fires the old supervisor, a cheap crook, and picks on me to run the country, explaining they couldn't pay me half the money I was earning then, but said there were things better than money. I am a rough-neck mountaineer and he gave me a lookout I never had before. So I got a picture in my mind of how this land ought to be run, minus firebugs, grazing pirates and timber looters. Part of the scheme is to have these fertile mountain basins homesteaded by honest settlers who will get a square deal and a chance to make a decent living and educate their kids."

One afternoon, the twenty-first of our little chopping bee, Buddy and yours truly is sailing through a few cords of wood, while Pink-Neck is up ahead brandishing his ax like a human pin-wheel, completely shrouded in a cascade of chips and profanity: "Hi!" he calls, "what's this? Old blazes and a trail!"

"Soldier Springs," I hollers. "We are three days ahead of time."

Then he starts cavorting and raring about like a colt. "We're the boys," he shouts. "Hi, ranger, aren't we the hummers? Can I chop the trail? Answer me that, bang blast your ornery, flea-bitten, sin-soaked soul!" and he fetches me a welt between the shoulder blades that near jarred loose my eye-pegs.

"What next? Lead me to more of it."

"Well," I says, "we worked three Sundays and a Labor Day. If you all want to I'll take that time and steer you into the finest mountain sheep and elk country you ever dreamed of. It's right here handy on the trail to War Eagle, and you can pick the heads to suit."

We done just that, too, and the chronicles of that hunt is another yarn—and a dandy. After that, I packs 'em to War Eagle, sheep-horns, elk-horns and all, the jubilating bunch of dudes I ever seen.

Before the stage clatters out next morning, Sissy corners me alone. She looks a little funny and shy, but she fetches it up at last:

"Mr. Ranger," says she, "I want to thank you so much for what you did for my brother. I didn't like the boys he was associating with at school, or his attitude toward girls. But

you have changed him so. I wish he would come out again with you. Then she looks me straight in the eye. "Mr. Ranger," she says, holding out her hand, "I would like to see my brother grow up to be the same kind of a man you are!" Then she turns quick and walks off. I reckon I blushes a mite, for I felt lumpy inside. She was a nice girl, though an easterner.

Next comes Buddy. "Good bye," he says, "I am coming out next summer. Going to build cabins, fight fires, and have a whale of a time. It beats coaching through Yellowstone. Honest, it was great the way you trimmed Sis down. She was too darn full of airs."

While I'm snickering to myself the old lady heaves into sight. "Good bye," she chirps. "We had a wonderful time." She reaches out her hand, nothing lily-white about it now, either—regular sheep-herder's paw. "And Mr. Ranger, it was splendid the way you handled Charles! I did enjoy seeing him take orders. He looks so well, too."

Before I gets back to earth again old Pink-Neck is on the scene. I notices his pants is five inches slack around the waist, his neck is thinner and brown and he stands up straight and looks like a genuine, every-day man, with an air that proclaims liberty, equality and fraternity. Also, he don't make no mention of influence nor bills. "Ranger," says he, "I've had the time of my fair young life. Never felt better. Like a boy again. Incidentally, I have found out a lot about these National Forests I never knew before. We want you to come East and see us this Christmas. There are some men back there I'd like to have you know. Now just between us, man to man, one question: How did you make my family toe the mark? I've been married twenty-five years and never swung the trick yet. Shake!"

So he rolls away. The next day the supervisor blows in, and we heads for the Gold Basin District. I rode him over the forty-five miles of the Papoose Trail and he notes the chips, sawdust, logs, corduroy, bridges and other visible signs of toil and conflict, and I never seen him look so queer—sort of puzzled, pleased, reverent and horrified all at once. Nary a peep does he make till the last day: "When did you start this trail?" he asks.

"I never laid the ax to her until September third," I replies.

"Humph," he snorts, "and you were at War Eagle on the thirtieth. You were going some. I should estimate this a six weeks job for five men. I'll give you more next time."

I wipes a grin off my face and rolls a cigarette.

"By the way," he goes on careless like, but eyeing me close and steady, "You didn't happen to run into any corn-fed senators out here, did you?"

"No," I comes back. "I never did see anything that leastwise resembled my notions of a senator. Don't reckon they stray this far."

"Damn funny," he says, "I met Senator Harrington on the trail coming out. Wife and two children with him!"

Something played leapfrog up and down my stomach and I swallowed my cigarette.

"Yes," booms on the supervisor, "I spent the whole evening with them at Dutch Chris' road house. He had been over here in this country inspecting forests for a month or more, he told me."

The supervisor eyes me with a knowin' look. "Senator's had a complete change of heart," he goes on. "Rangers' finest body of men country ever produced. Tacful, hard-working and honest patriots—yes, tacful and honest. You didn't happen to tell him that a New Forest Service telephone line ran within three miles of their camp at Papoose Meadows?"

"No," says I, coughing up the cigarette from under my liver pin.

"Neither did I," says the supervisor.

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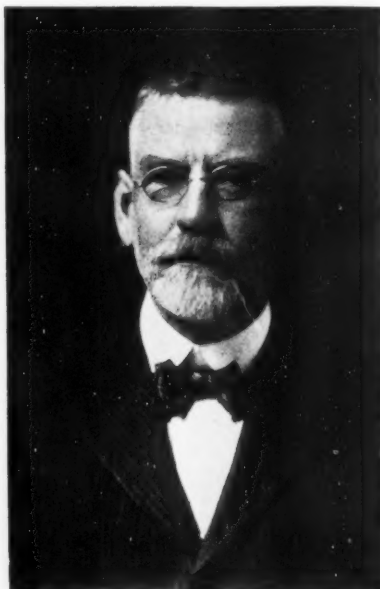
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**Index to  
ADVERTISERS  
OCTOBER, 1935**

	PAGE
American Fork and Hoe Company	605
American Telephone & Telegraph Company	2nd Cover
Barnes and Noble, Inc.	608
Bartlett Manufacturing Company	615
Beebe Brothers	603
Chalfonte-Haddon Hall	614
Council Tool Company, The	602
Darley & Company, W. S.	603
Fechheimer Brothers Co., The	606
Good Roads Machinery Corporation	611
Herbst Brothers	613
Horse, The	606
Idaho School of Forestry	610
Ingersoll Steel & Disc Company	4th Cover
International Harvester Company of America	601
Jaeger Machine Company, The	611
Keene Forestry Associates	613
Kelsey Nursery Service, F. W.	602-613
Maine School of Forestry	614
New York State School of Forestry	610
Oberlin Peony Gardens	614
Pendleton Woolen Mills	607
Remington Arms Company	609
Schumacher, F. W.	613
Smith & Company, D. B.	607
Stoeger, Inc., A. F.	615
Tabor, Rollin H.	615
Western Maine Forest Nursery	613
Woolrich Woolen Mills	609-615

### Austin Cary Retires

Retirement of Mr. Austin Cary after a half-century of forestry activities, including twenty-five years of continuous employment by the Forest Service, was announced by the Department of Agriculture August 12. Mr. Cary, who ranked as senior logging engineer of the Forest Service, was the recipient of many letters of appreciation, including a letter from Chief Forester F. A. Silcox. He was born in Maine and has gone back to spend his retirement at Brunswick, in that State.



Austin Cary

A graduate of Bowdoin College, Mr. Cary took graduate work at Johns Hopkins and Princeton, and taught forestry in the Yale Forest School and at Harvard. He also served in private forestry. As forester for the Berlin Mills Company, now the Brown Company, of Berlin, New Hampshire, he was the first American to hold such a position. The Berlin Mills Company was one of the first lumber companies to plan reforestation as it cut the timber crop from its properties. Before the Forest Service was created in 1905, Mr. Cary had also served in state forestry in Maine and in New York.

Hundreds of private foresters in the New England States and the South give him credit for having started them in the hitherto untended field of scientific forestry. He also was active throughout his career with the Forest Service in building up improved woods practice in the turpentine producing areas of the South.

Upon the occasion of his retirement, F. A. Silcox, Chief of the Forest Service, wrote Mr. Cary as follows:

"I would like to express to you for the Forest Service and for myself personally a very sincere regret that we will no longer have the advantage of your high ability, sound judgment and practical good sense. You are to be congratulated most heartily upon the things which you have done for forestry in the United States. You have been the means of improved forest practice on very large areas of forest land, especially in the South and in the Northeast. This must be a source of great satisfaction to you as it is to the Forest Service."

### WHO'S WHO

#### Among the Authors in This Issue

JULIAN ROTHERY (*The Building of the Pa-poose Trail*) has recently become associated with the Forest Service in Washington, D. C., after having been chief forest engineer for the International Paper Company since 1927. Graduating from the Yale Forest School in 1908, he spent the next several years on the National Forests of Idaho.

IRA N. GABRIELSON (*Must the Antelope Go?*) is assistant chief, Division of Wildlife Research, Bureau of Biological Survey. He has been associated with this work for seventeen years, coming to Washington, D. C., lately from the Pacific Coast district, where he handled both predatory animal and rodent control work for the Bureau.

F. G. WILSON (*More Power to the Fire Fighters*) is superintendent of Cooperative Forestry for the Wisconsin Conservation Department. Recently relieved of forest protection supervision, he is devoting full time to co-operation with counties in the establishment of county forests and in the enactment of zoning ordinances closing submarginal land to agricultural development.

FARNSWORTH CROWDER (*Abroad in California*) lives in Altadena, California, where he does free lance writing and publicity work. His interest in plant life began in his high school days when he won a botany text as a prize for obtaining the greatest number of wild flower specimens from the slopes of Pikes Peak for the annual exhibit in Colorado Springs.

W. C. McCORMICK (*Paradise Found*) is assistant State Forester in charge of fire control in North Carolina. From 1928 to 1931 he directed the Southern Forestry Educational Project of The American Forestry Association and later served as secretary of the Florida Forestry Association and as assistant State Forester for South Carolina.

DANIEL DENUYL (*Should Farmwoods Be Grazed?*) is assistant professor of Forestry at Purdue University, where he has been doing experimental work in the School of Agriculture for the past seven years.

DUANE H. KIPP (*No Closed Season—No Bag Limit*) is superintendent of Public Relations, Conservation Department, Madison, Wisconsin.

FRIEDRICH M. FRYXELL (*Prospector of Jackson Hole*) is a geologist who lives in Moline, Illinois. For many years he was engaged in the study and exploration of the Teton Mountain region. With the creation of the Grand Teton National Park in 1929 he was selected by the National Park Service to prepare the description of the new Park and become its first naturalist.

CRISTEL HASTINGS (*Lassen—America's Active Volcano*), a native of California, has written extensively about the natural beauties of her State. She is a frequent contributor to AMERICAN FORESTS.

SHIRLEY ALLEN (*Field and Forest for Boys and Girls—How Wood is Made*) is professor of forestry at the School of Forestry and Conservation, University of Michigan. He was formerly Forester for The American Forestry Association.

G. H. COLLINGWOOD (*Forestry in Congress*) is Forester for The American Forestry Association.



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## What the Association Is Working For

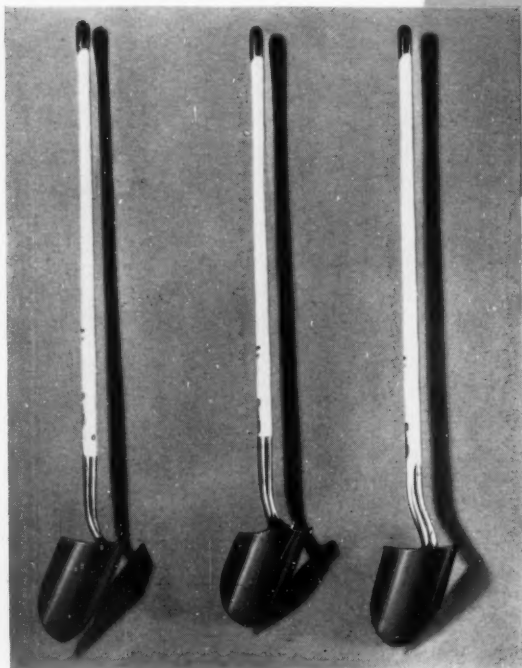
ADEQUATE FOREST FIRE PROTECTION by fed-  
eral, state, and other agencies, individually and in co-  
operation; the REFORESTATION OF DENUDED LANDS,  
chiefly valuable for timber production or the protection of stream-  
flow; more extensive PLANTING OF TREES by individuals,  
companies, municipalities, states, and the federal government; the  
ELIMINATION OF WASTE in the manufacture and consump-  
tion of lumber and forest products; the advancement of SOUND  
REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE  
FORESTS where local and national interests show them to be  
desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC  
AND PRIVATE FORESTS so that they may best serve the per-  
manent needs of our citizens; the development of COMMUNITY  
FORESTS.

FOREST RECREATION as a growing need in the social  
development of the nation; the PROTECTION OF FISH AND  
GAME and other forms of wildlife, under sound game laws; the  
ESTABLISHMENT OF FEDERAL AND STATE GAME PRE-  
SERVES and public shooting grounds; STATE AND NATIONAL  
PARKS and monuments where needed, to protect and perpetuate  
forest areas and objects of outstanding value; the conservation of  
America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school chil-  
dren, with respect to our forests and our forest needs; a more aggres-  
sive policy of RESEARCH AND EDUCATIONAL EXTENSION  
in the science of forest production, management, and utilization, by  
the nation, individual states, and agricultural colleges; reforms in  
present methods of FOREST TAXATION, to the end that timber  
may be fairly taxed and the growing of timber crops increased.

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